STATEWIDE FISHERIES SURVEYS, 2002
SURVEY OF PUBLIC WATERS
Part 1
Lakes - Region II

South Dakota
Department of
Game, Fish and Parks
Wildlife Division
Joe Foss Building
Pierre, South Dakota 57501-3182

Annual Report
No. 04-10

STATEWIDE FISHERIES SURVEYS, 2002

SURVEYS OF PUBLIC WATERS

Edited by
Dan Jost

(Annual Report)

Part 1 Lakes
Region II

Dingell-Johnson Project F-21-R-38

Job Number 2102

Date July 2004

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STATEWIDE FISHERIES SURVEY, 2002

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INTRODUCTION

Data gathered from May through October 2002 in State Management Region II are contained in this report. The Missouri River System and other State Management Regions are contained in separate reports.

OBJECTIVE

To survey waters where data is not sufficient to complete management plans or where optimum sport fishing yields are not realized under existing management and additional information is needed for plan update and remedial action.

PROCEDURE

Individual waters are surveyed to accumulate and update physical, chemical, and biological data. A review of existing information accompanied new data collections. Information collected was recorded on a narrative type form developed for the new South Dakota Fisheries Investigations Manual.

FINDINGS

The findings are contained in the following lake survey report. This reporting method will allow for orderly method of collecting and recording data, making it available for completing and updating management plans and evaluating current management practices.

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Campbell Lake **County:** Campbell
Legal Description: T126N-R77W-Sec. 10, 11, & 15
Location from nearest town: 1 mile west, 2 miles north, and ½ mile west of Mound City

Date of present survey: July 1-3, 2002 (netting); September 21, 2002 (electrofishing)
Date of last survey: June 14-16, 1999 (netting); September 20, 1999 (electrofishing)
Most recent lake management plan: F-21-R-34
Management classification: Warmwater Semi-Permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Yellow Perch
Bluegill	Black Bullhead
Black Crappie	

PHYSICAL DATA

Surface Area: 40 acres **Watershed:** 9,230 acres
Maximum Depth: 22 feet **Mean Depth:** 9 feet
Lake elevation at time of survey (field observations): Full
Contour map: Yes **Date:** 1985

Ownership of lake and adjacent lakeshore properties:

Lake Campbell is mostly privately owned with an access easement to the State of South Dakota to a line twelve feet above the high water mark. Campbell County owns a small portion of the lake, which includes the dam grade and spillway area. The South Dakota Game, Fish and Parks manage the fishery.

Watershed condition with percentages of land use types:

Watershed land use of Campbell Lake is 50% pastureland and hayland, 48% cropland, and 2% woodland.

Fishing access:

Most of the north shoreline has good fishing access with a boat ramp and a picnic area. There is other shoreline fishing around the lake that may be limited by aquatic vegetation during the summer months.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The boat ramp at Campbell Lake is in good condition. The dam is in good shape since the work was completed to repair the leaky spillway.

Field observations of aquatic vegetation condition:

Emergent vegetation surrounds 30% of the shoreline at Campbell Lake. Patches of submergent vegetation are found throughout the lake and become more prominent in shallow water areas.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident during the 2002 survey. Water clarity was fair to poor with a secchi disc reading of 4 feet. Other water quality characteristics were measured in the field on July 1, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results trom Lam bell Lake, Lam bell County, 2002.

A	Surface	74	8.08	23.8		554	9.0	4
A	17	68	0.75	29.6	305	527	8.0	

BIOLOGICAL DATA

Methods:

Campbell Lake was sampled on July 1-3, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and 3/4 in. knotted mesh. No experimental gill nets were set during the current survey. On September 21, 2002, Campbell Lake was electrofished for 50 minutes (5-ten minute transects) with pulsed AC to sample the largemouth bass population. Conductivity was 1600 µhmos. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Black bullheads dominated the trap net catch at Campbell Lake at 80.7%. Bluegills made up 19% of the catch and yellow perch comprised the rest of the catch.

Table 2. Total catch of ten, overnight ¾-inch frame nets at Campbell Lake, Campbell County, July 1-3, 2002.

Species	#	%	CPUE	80% C.I.	Mean* CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	738	80.7	73.8	± 50.4	135.7	90	1	85
Bluegill	174	19.0	17.4	f 6.8	74.3	100	5	99
Yellow Perch	2	0.1	0.2	t 0.3	0.0	--	--	--

* Two years (1997 & 1999, winterkill during 1996-97)

Electrofishing Catch

A large number (96 per hour) of largemouth bass were sampled during the fall electrofishing at Campbell Lake.

Table 3. Total catch from five, ten-minute runs of fall nighttime electrofishing on Campbell Lake, Cam bell County, September 21, 2002.

Species	#	%	CPUE	80% C.I.	Mean* CPUE*	PSD	RSD-P	Mean Wr
Largemouth Bass	80	100	96	t 26.5	96.0	39	27	104

* One year (1999)

Largemouth Bass

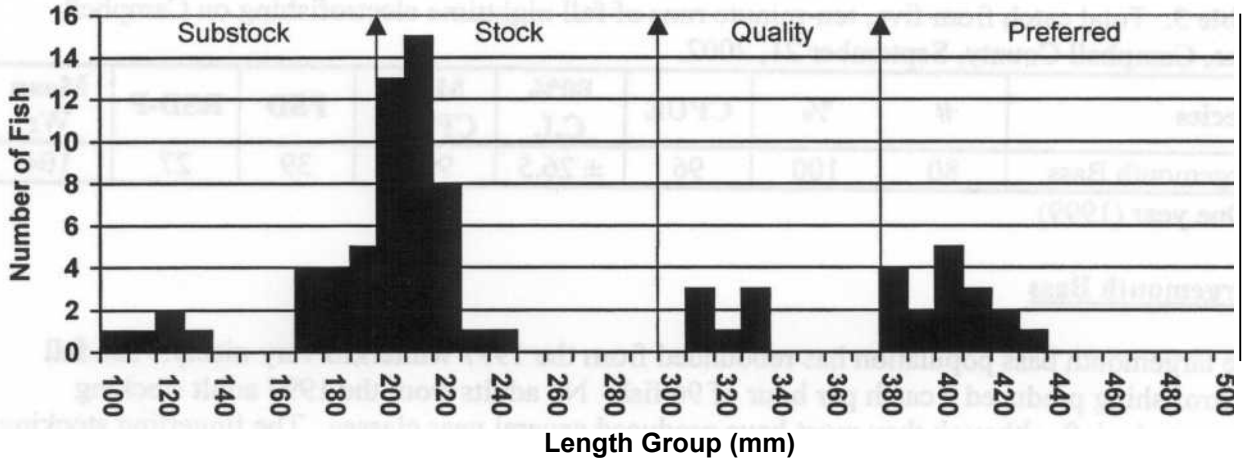
The largemouth bass population has rebounded from the 1997 winterkill very nicely. The fall electrofishing produced a catch per hour of 96 fish. No adults from the 1997 adult stocking appear to be left, although they must have produced several year classes. The fingerling stocking did very well and has produced a very good year class in 2001. Growth is good with means right at the statewide, regional, and SLI averages (Table 4). The size structure (Figure 1) is good with a PSD of 39 and an RSD-P of 27. They are in very good condition with a Wr value of 104. Looking at the black bullhead and bluegill populations from this year and the previous survey, it is apparent that the largemouth bass are controlling these populations. It is not real clear how the 15" length limit is doing here since the winterkill, but should be evident in the next couple years since the fish stockings in 1997 are now reaching or over 15 inches. Hopefully, this size limit will maintain the larger bass in the lake to help keep the black bullhead and bluegill populations in control.

Table 4. Average back-calculated lengths (mm) for each age class of largemouth bass sampled in Campbell Lake, Campbell County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
2001	1	38	122				
2000	2	2	86	196			
1999	3	5	81	125	238		
1998	4	7	65	103	276	348	
1997	5	10	60	93	248	320	374
All Classes		**62**	**83**	**129**	**254**	**334**	**374**
Statewide Mean			96	182	250	305	342
Region II Mean			105	183	246	296	328
SLI* Mean			99	183	246	299	332

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for largemouth bass sampled by electrofishing from Campbell Lake, Campbell County, 2002.



Bluegill

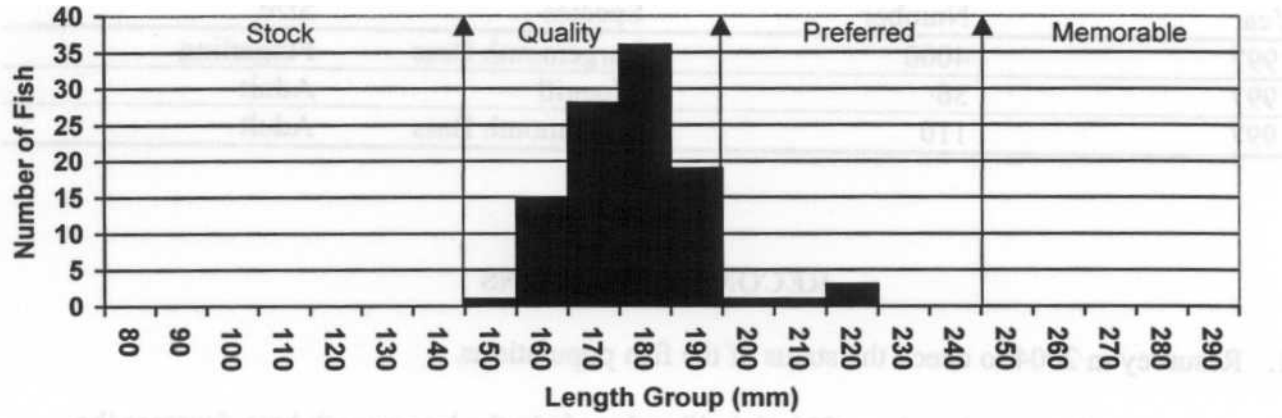
The bluegill population in Campbell Lake it doing very well. None of the 35 adults stocked in 1997 were present in the survey, but they produced a couple of good year classes before they disappeared. Growth of the bluegills is good with averages slightly below statewide, regional, and SLI means (Table 4). Their condition is excellent with a Wr value of 99. The size structure (Figure 3) is improving from the last survey with a PSD of 100 and an RSD-P of 5. The only thing missing is the presence of a new year class.

Table 5. Average back-calculated lengths (mm) for each age class of bluegill sampled in Campbell Lake, Campbell County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
1999	3	4	50	90	143		
1998	4	27	46	83	121	154	
1997	5	73	39	64	99	132	168
All Classes		**104**	**45**	**79**	**121**	**143**	**168**
Statewide Mean			55	103	141	166	180
Region II Mean			52	97	134	164	180
SLI* Mean			53	101	138	163	180

* Small Lakes and Impoundments

Figure 2. Length frequency histogram for bluegill sampled in Campbell Lake, Campbell County, 2002.



Black Bullhead

The largemouth bass population is apparently controlling the black bullhead population. The CPUE has drastically decreased from 247.3 in 1999 to the current 73.8. The size structure has also increased (Figure 3) from a PSD of 18 in 1999 to the current PSD of 90 with an RSD-P of 1. Their condition is fine with a Wr value of 85. No new year classes are evident since 1999. The black bullhead population is turning around and becoming under control. With a manual removal, the CPUE could be decreased and the size structure could be increased.

Figure 3. Length frequency histogram for black bullhead sampled in Campbell Lake, Campbell County, 2002.

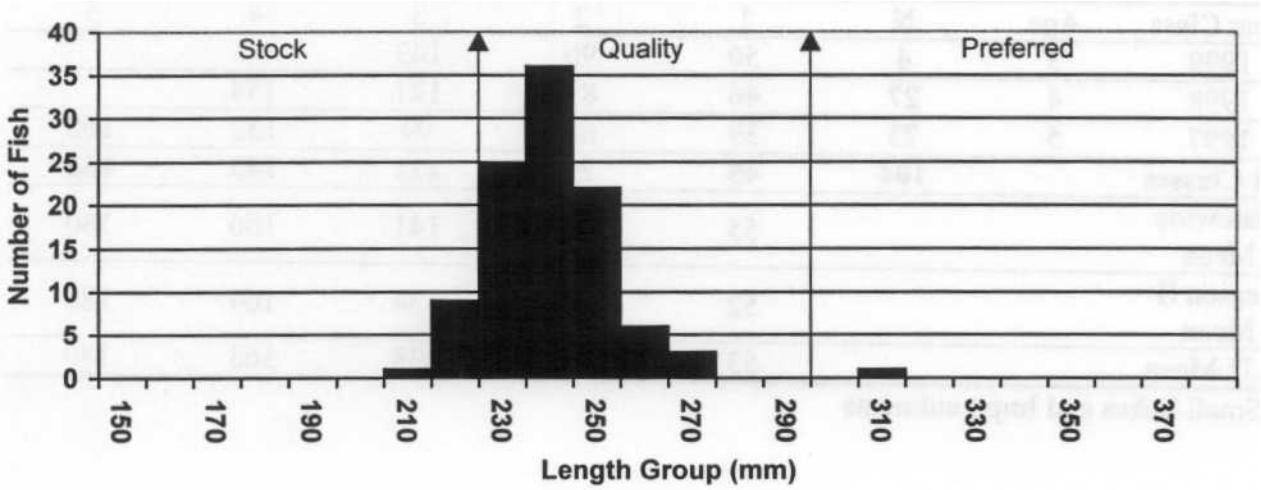


Table 6. Stocking records from 1997 (winterkill) to present for Campbell Lake.

Year	Number	Species	Size
1997	4000	Largemouth Bass	Fingerling
1997	36	Bluegill	Adult
1997	110	Largemouth Bass	Adult

RECOMMENDATIONS

1. Resurvey in 2004 to check the status of the fish populations.

2. Do a manual removal project of black bullheads to help the largemouth bass decrease the CPUE and increase the size structure.

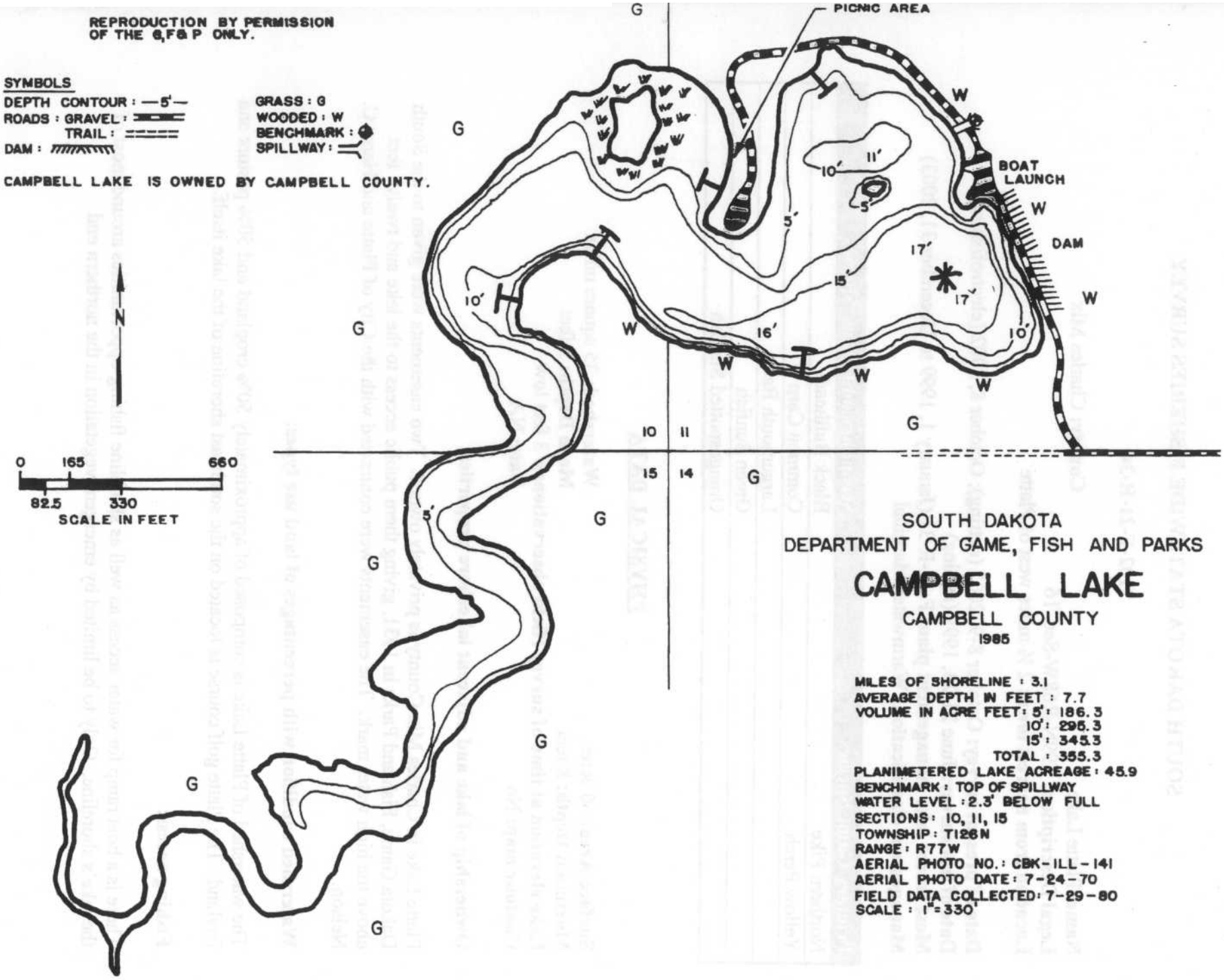
REPRODUCTION BY PERMISSION
OF THE G,F&P ONLY.

SYMBOLS

DEPTH CONTOUR : —5'—
ROADS : GRAVEL :
TRAIL :
DAM :

GRASS : G
WOODED : W
BENCHMARK :
SPILLWAY :

CAMPBELL LAKE IS OWNED BY CAMPBELL COUNTY.



SOUTH DAKOTA
DEPARTMENT OF GAME, FISH AND PARKS

CAMPBELL LAKE

CAMPBELL COUNTY
1985

MILES OF SHORELINE : 3.1
AVERAGE DEPTH IN FEET : 7.7
VOLUME IN ACRE FEET: 5' : 186.3
10' : 295.3
15' : 345.3
TOTAL : 355.3
PLANIMETERED LAKE ACREAGE : 45.9
BENCHMARK : TOP OF SPILLWAY
WATER LEVEL : 2.3' BELOW FULL
SECTIONS : 10, 11, 15
TOWNSHIP : T126N
RANGE : R77W
AERIAL PHOTO NO. : CBK-ILL-141
AERIAL PHOTO DATE : 7-24-70
FIELD DATA COLLECTED : 7-29-80
SCALE : 1"=330'

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Platte Lake **County:** Charles Mix
Legal Description: T99N-R68W-Sec. 16
Location from nearest town: 2 '/z miles west of Platte

Date of present survey: October 8-9, 2002 (netting); October 8, 2002 (electrofishing)
Date of last survey: June 21-23, 1999 (netting)
Most recent lake management plan: F-21-R-31 (January 1, 1999 to December 31, 2003)
Management classification: Warmwater Marginal

Northern Pike	Black Bullhead
Yellow Perch	Common Carp
	Largemouth Bass
	Green Sunfish
	Orangespotted Sunfish

PHYSICAL DATA

Surface Area: 60 acres **Watershed:** 35 square miles
Maximum Depth: 8 feet **Mean Depth:** 5 feet
Lake elevation at time of survey (field observations): 3 feet low
Contour map: No **Date:** NA

Ownership of lake and adjacent lakeshore properties:

Platte Lake in Charles Mix County is privately owned. Two easements were given to the South Dakota Game, Fish and Parks in 1931, giving them public access to the lake and twelve feet above the high water mark. The easements were contracted with the City of Platte and Harry C. Nelson.

Watershed condition with percentages of land use types:

The watershed of Platte Lake is composed of approximately 50% cropland and 50% pasture and hayland. The Platte golf course is located on the southeast shoreline of the lake itself.

Fishing access:

There is a boat ramp for water access as well as shoreline fishing opportunities around most of the lake's shoreline. Only to be limited by emergent vegetation in the northern end.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The dam grade is in good condition, a few trees are present and should be removed. The concrete spillway is in good condition; some work is needed on the wing walls to eliminate water pooling behind the structure during high water periods. The boat ramp is in poor condition. More planks need to be added along with some other work.

Field observations of aquatic vegetation condition:

Emergent vegetation surrounds most of the shoreline and is especially dense on the northern third of the lake. There was very little submergent vegetation found in the lake.

CHEMICAL DATA

Field observations of water quality and pollution problems:

The only pollution problem in Platte Lake is the siltation problem. The siltation has decreased the lake depth and increased the winterkill potential. No other pollution problems were evident at the time of the survey. Water clarity was poor with a secchi disc reading of 19 inches. Other water quality characteristics were measured in the field on October 8, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Platte Lake, Charles Mix County, 2002.

Station	Depth (ft	Temp F	DO m	C02 (. m	ALK (m /1	Hardness m /1	H	Secchi disc in
A	Surface	50	9.41	64.8	207	874	7.75	19
A	5.5	50.5	10.19	62.8	295	716	7.75	

BIOLOGICAL DATA

Methods:

Platte Lake was sampled on October 8-9, 2002, with six overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and $^{3}/_{4}$ in. knotted mesh. No experimental gill nets were set during this survey. On October 8, 2002, Platte Lake was electrofished for 40 minutes (4-ten minute transects) with pulse AC to sample the largemouth bass population. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Black bullhead and common carp were the two most dominant species sampled in this survey, 58.4% & 41.6% of the total catch respectfully (Table 2). No game fish were sampled and the only other species sampled were two orangespotted sunfish and one green sunfish.

Table 2. Total catch of six, overnight 3/4-inch frame nets at Platte Lake, Charles Mix County, October 8-9, 2002.

Species	#	%	CPUE	80% C.I.	Mean* CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	29,433	58.4	4905.5	± 1429.9	316.0	0	0	0
Common Carp	20,931	**41.6**	3488.5	± 1013.9	10.5	58	24	0
Orangespotted Sunfish	2	0.004	0.3	± 0.2	0.5	0	0	0
Green Sunfish	1	0.002	0.2	± 0.5	0.9	0	**0**	**0**

* Five years (1984, 1988, 1993, 1996, and 1999)

Electrofishing Catch

Black bullheads and common carp were the only fish seen during the 40 minutes of nighttime electrofishing. No largemouth bass were sampled or even seen.

Fish Population Status

Small black bullheads and common carp dominate the fish population of Platte Lake. The CPUE's of both species jumped from the five year means of 316 and 10.5, respectfully, to 4905.5 and 3488.5. The PSD for black bullheads has dropped from 18 in 1999 to 0, Figure 1 illustrates this. The PSD for common carp has increased from 37 in 1999 to 58 with a RSD-P of 24, Figure 2 illustrates this. The current PSD and RSD-P for common carp is probably elevated due to the small number measured compared to the large number that were caught. Table 2 shows that the only other species caught were 2 orangespotted sunfish and 1 green sunfish. None of the game species found in the 1999 survey were seen in the trap nets or in the 40 minutes of nighttime electrofishing.

Stocking records:

Northern pike is the only fish that has been stocked in the last ten years. The stocking was 12,000 fingerling in 1997. None of these fish were seen in the present survey, or the sign of any other year class of northern pike.

Figure 1. Length frequency histogram for black bullhead sampled from Platte Lake, Charles Mix County, 2002.

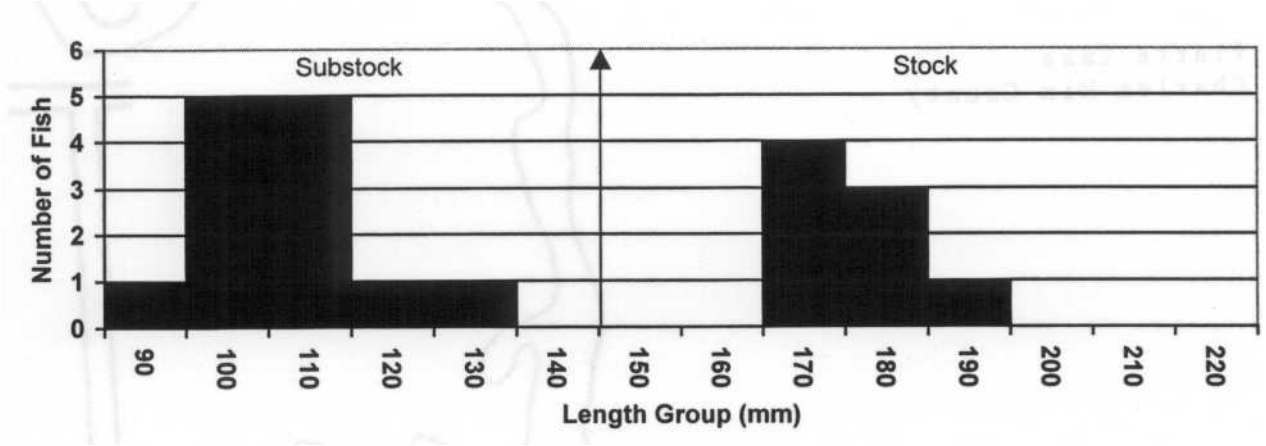
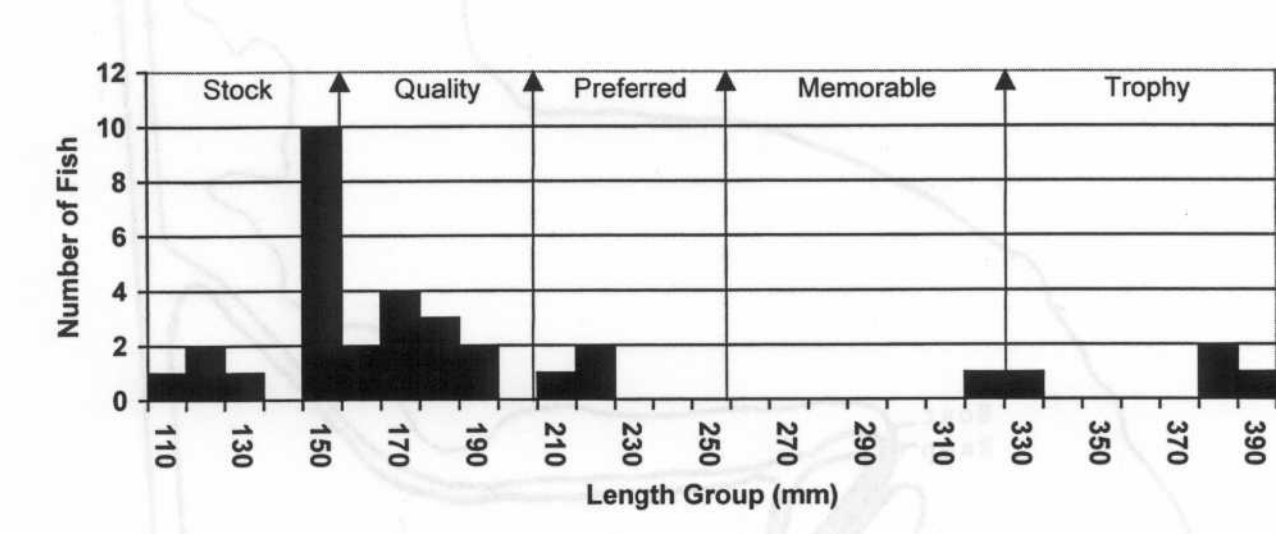


Figure 2. Length frequency histogram for common carp sampled from Platte Lake, Charles Mix County, 2002.

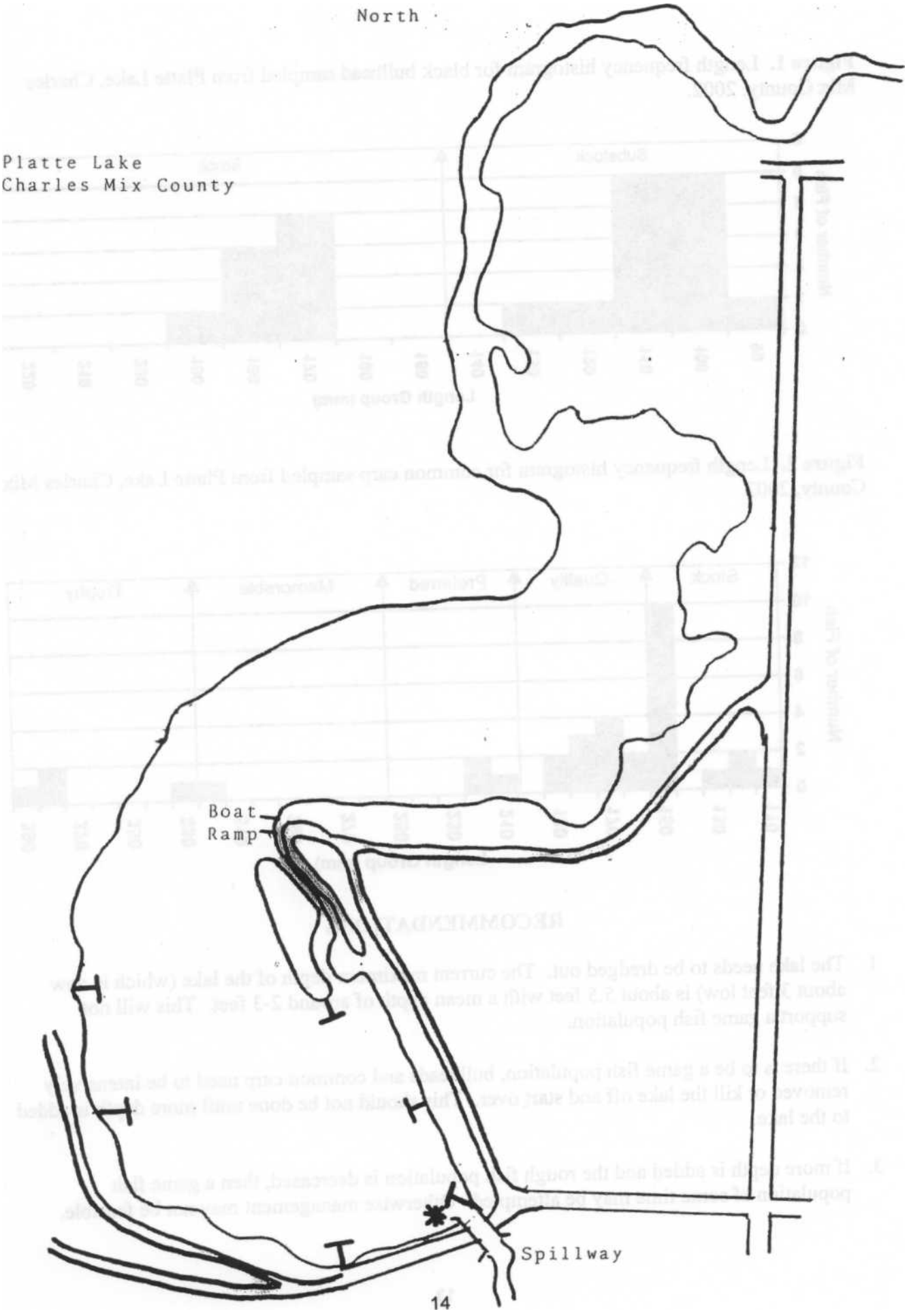


RECOMMENDATIONS

1. The lake needs to be dredged out. The current maximum depth of the lake (which is now about 3 feet low) is about 5.5 feet with a mean depth of around 2-3 feet. This will not support a game fish population.

2. If there is to be a game fish population, bullheads and common carp need to be intensively removed or kill the lake off and start over. This should not be done until more depth is added to the lake.

3. If more depth is added and the rough fish population is decreased, then a game fish population of some time may be attempted. Otherwise management may not be feasible.


North
Platte Lake
Charles Mix County
Boat
Ramp
Spillway

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: East Morristown Lake **County:** Corson
Legal Description: T23N-R20W-Sec. 27-28
Location from nearest town: 4 miles east, '/z mile south, and ¼ mile west of Morristown

Date of present survey: June 17-19, 2002 (netting)
Date of last survey: July 26-28, 1999 (netting); October 13, 1999 (electrofishing)
Most recent lake management plan: F-21-R-33 (January 1, 2001 to December 31, 2005)
Management classification: Warmwater Marginal

Primary Game Species	Secondary and Other Species
Northern Pike	Black Bullhead
Black Crappie	Largemouth Bass
Yellow Perch	

PHYSICAL DATA

Surface Area: 96 acres **Watershed:** 6,720 acres
Maximum Depth: 26 feet **Mean Depth:** 12 feet
Lake elevation at time of survey (field observations): 2 feet low
Contour map: No **Date:** NA

Ownership of lake and adjacent lakeshore properties:

The dam grade and part of the north shore (NE ¼ of Sec. 28) of East Morristown Lake is owned by the State of South Dakota. The State of South Dakota also owns the NW ¼ of the SW ¼ of Sec. 27. The Bureau of Indian Affairs owns the land on the east end (the rest of the south half of Sec 27) and the northwest part of the lake (NW ¼ of Sec 28). The rest of the lake is privately owned.

Watershed condition with percentages of land use types:

The watershed use is 66% pasture and hayland and 34% cropland. The immediate shoreline is pastureland.

Fishing access:

There are two boat ramps to access the water with a boat. The ramp on the east end of the lake is the better of the two, but both are good ramps. There is also shoreline fishing opportunities around most of the lake.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

Dam and spillway are in good condition. Access to the shoreline is a dirt trail, which is impassable when wet.

Field observations of aquatic vegetation condition:

Emergent vegetation is present in both arms of the East Morristown Lake. Submergent vegetation is scattered throughout the lake and is heaviest in the shallow areas.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident during the present survey. Water clarity was good with a secchi disc reading of 6.5 feet. Other water quality characteristics were measured in the field on June 17, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from East Morristown Lake, Corson County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	64	3.74	30.2	611	575	9.5	6.5
A	21	62	3.54	7.4	492	649	9.5	

BIOLOGICAL DATA

Methods:

East Morristown Lake was sampled on June 17-19, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and ¾ in. knotted mesh. Two experimental gill nets were also set. The gill nets are 150 ft. x 6 ft. with 25 ft panels of ½, ¾, 1, 1-1/4, 1-1/2, and 2 inch monofilament mesh. No electrofishing was done during this survey. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Gill net catch

Yellow perch dominated the catch of the two gill nets at 92.8%. Northern pike were also seen in the gill nets at 7.1 %.

Table 2. Total catch of two, 150 ft. experimental gill nets at East Morristown Lake, Corson Count , June 17-19, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Yellow Perch	39	92.8	19.5	± 56.9	4.7	5	0	92
Northern Pike	3	7.1	1.5	f 1.5	4.4	67	0	90

* Five years (1981, 1989, 1994, 1997, and 1999)

Trap Net Catch

Even numbers of bluegill and northern pike were seen at 37.5%. Black crappie were also seen in almost as abundant numbers at 25%.

Table 3. Total catch of ten, overnight 3/4-inch frame nets at East Morristown Lake, Corson Count , June 17-19, 2002.

Species	#	%	CPUE	80% C.I.	Mean* CPUE*	PSD	RSD-P	Mean Wr
Bluegill**	15	37.5	1.5	± 1.0	0.0	50	50	134
Northern Pike	15	37.5	1.5	±0.6	1.7	46	0	92
Black Crappie	10	25.0	1.0	± 0.7	54.3	100	100	96

* Five years (1981, 1989, 1994, 1997, and 1999)
** First stocked in 1999

Black Crappie

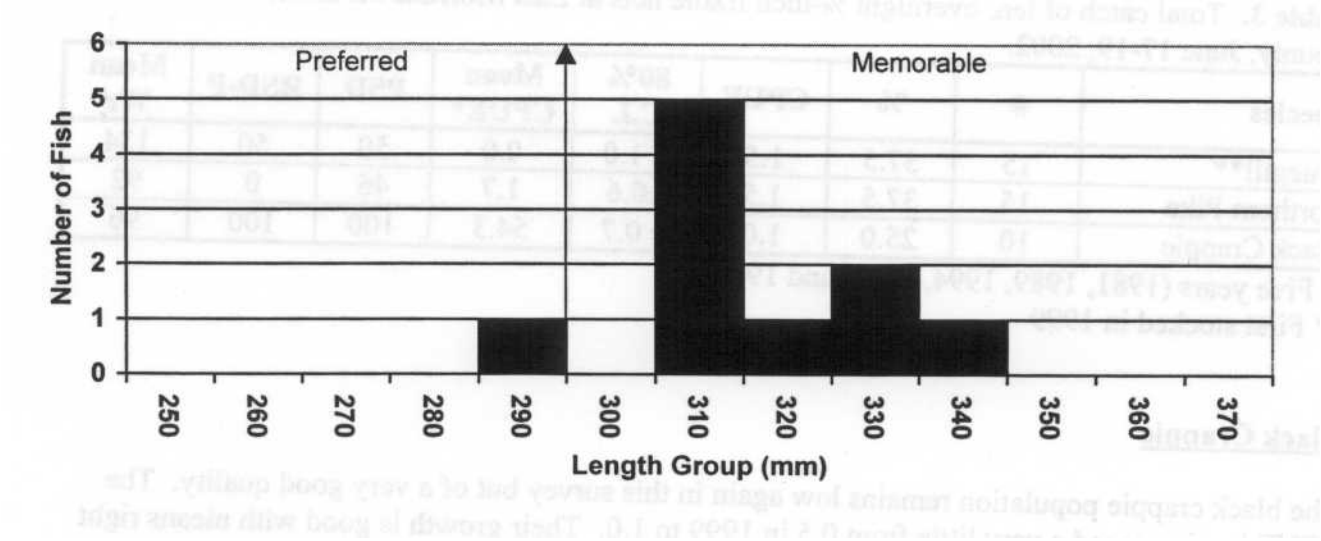
The black crappie population remains low again in this survey but of a very good quality. The CPUE has increased a very little from 0.5 in 1999 to 1.0. Their growth is good with means right around the statewide, regional and SLI means (Table 4). Their condition is also fine with a Wr value of 96. The size structure (Figure 1) of the black crappies is large with a PSD and RSD-P of 100. The sizes range from 11-13.5 inches. The black crappie population has remained at the current levels for the past 10 years or so with no real fluctuations. Back in the 1980's the black crappie population in East Morristown Lake was very good with CPUE's well over 100, but predominantly consisted of one year class. Now their numbers struggle to reach 1 even with the help of stockings. Natural recruitment appears to be nonexistent and has throughout the history of the lake.

Table 4. Average back-calculated lengths (mm) for each age class of black crappie sampled in East Morristown Lake, Corson County, 2002.

			Back-calculated Age						
Year Class	Age	N	1	2	3	4	5	6	7
1996	6	8	83	119	174	239	283	302	
1995	7	2	73	121	168	216	273	299	321
All Classes		**10**	**78**	**120**	**171**	**227**	**278**	**301**	**321**
Statewide Mean			83	147	195	229	249		
Region II Mean			75	132	177	209	235		
SLI* Mean			78	134	180	209	226		

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for black crappie sampled in East Morristown Lake, Corson County, 2002.



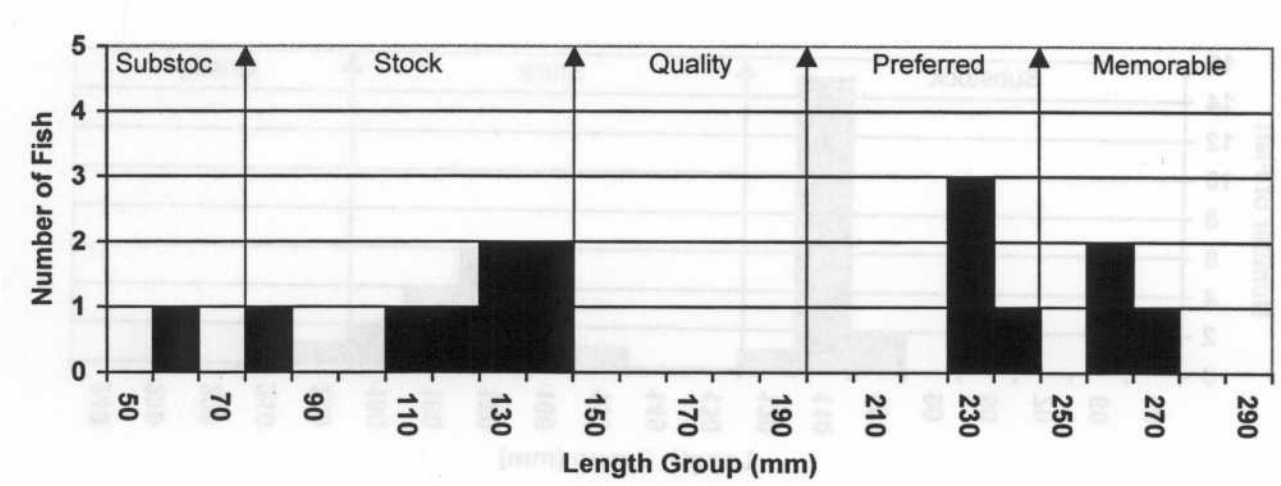
There has been no history of a bluegill population in East Morristown Lake before with this being the first catches that have stemmed from the adult stockings in 1999 (135) and 2000 (824). The bluegills look good and appear to be doing fine. Their growth is right at statewide, regional, and SLI means (Table 5). Their condition is actually too good with a Wr value of 134. With this extremely high value, there is obviously room for many more. Their size structure (Figure 2) is excellent with a PSD and RSD-P of 50. It appears that some natural recruitment is taking place. This could possibly allow bluegills to become the dominant panfish species in the lake. It will have to be monitored so that they do not get out of control without a dominant predator in the system.

Table 5. Average back-calculated lengths (mm) for each age class of bluegill sampled in East Morristown Lake, Corson County, 2002.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
2000	2	6	42	114				
1997	5	3	51	84	130	193	231	
1996	6	4	45	81	136	172	232	252
All Classes		**13**	**46**	**93**	**133**	**183**	**231**	**252**
Statewide Mean			55	103	141	166	180	
Region II Mean			52	97	134	164	180	
SLI* Mean			53	101	138	163	180	

* Small Lakes and Impoundments

Figure 2. Length frequency histogram for black crappie sampled in East Morristown Lake, Corson County, 2002.



Yellow Perch

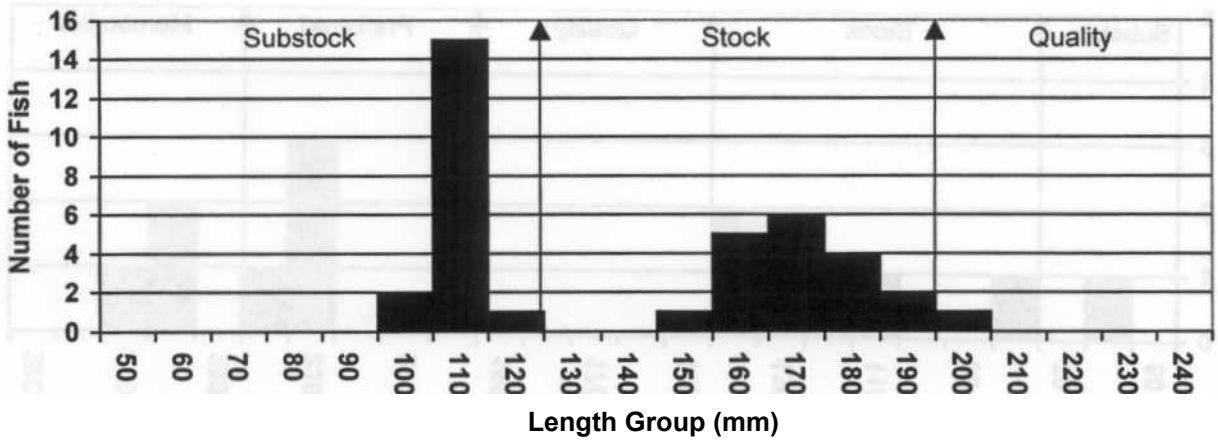
The yellow perch population has virtually been absent in the population since the early 1980's. They are now making resurgence with a gill net CPUE of 19.5. There must have been a small population that has gone undetected because the fish sampled are only 1 and 2 years old. This indicates that there must be some natural recruitment because the only stocking that has taken place in the last several years was back in 1995 with 2,500 fingerlings. The size structure (Figure 3) is on the small side (the fish are still young), but should improve in the next couple years. It will be fun to watch these perch grow in the population over the next few years and hopefully they will produce more year classes to keep the numbers high.

Table 6. Average back-calculated lengths (mm) for each age class of yellow perch sampled in East Morristown Lake, Corson County, 2002.

			Back-calculated Age	
Year Class	Age	N	1	2
2001	1	3	98	
2000	2	21	93	162
All Classes		**24**	**95**	**162**
Statewide Mean			86	145
Region II Mean			91	152
SLI* Mean			87	142

* Small Lakes and Impoundments

Figure 3. Length frequency histogram for yellow perch sampled in East Morristown Lake, Corson County, 2002.



Northern Pike

East Morristown has a good northern pike population. Their numbers are down from the previous survey. Their condition is good with a combined Wr value for gill nets and trap nets of 91. Their size structure (Figure 4) is also good. There are providing the main predator base in the lake.

Figure 4. Length frequency histogram for northern pike sampled in East Morristown Lake, Corson County, 2002.

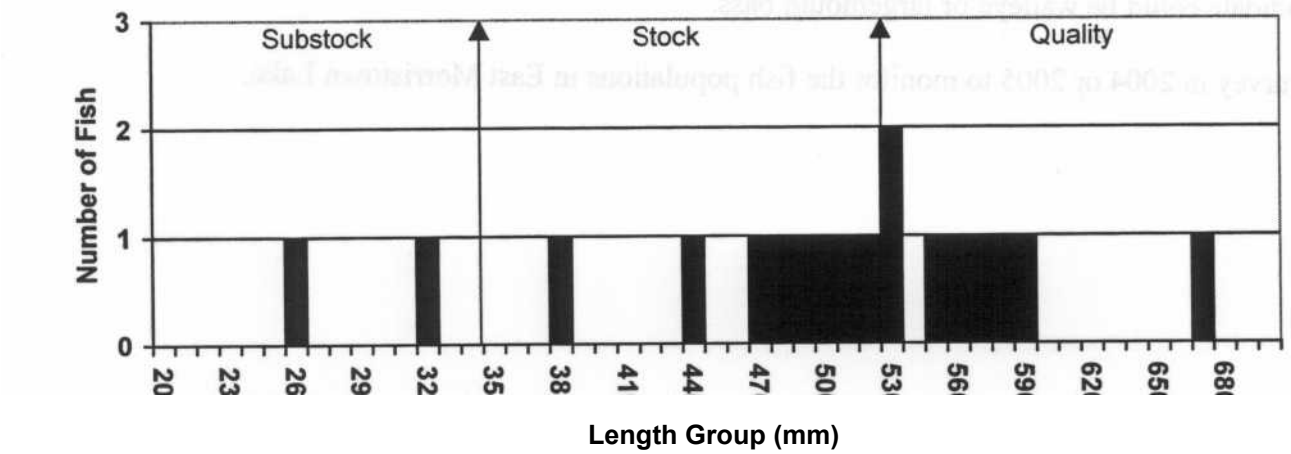


Table 7. Gill net (GN) and trap net (TN) CPUE for all fish species sampled from the first survey to the present in East Morristown Lake, Corson County.

Species	1981	1989	1994	1997	1999	2002
Black Bullhead (GN)	--	--	--	--	--	--
Black Bullhead (TN)	--	0.63	--	--	--	--
Black Crappie (GN)	73.0	--	--	--	--	--
Black Crappie (TN)	134.0	132.5	2.75	0.63	0.5	1.0
Yellow Perch (GN)	36.0	--	--	--	--	19.5
Yellow Perch (TN)	22.0	0.88	--	0.5	--	--
Northern Pike (GN)	4.0	--	6.0	8.0	4.0	1.5
Northern Pike (TN)	2.0	0.63	1.63	1.25	3.5	1.5
Bluegill (GN)	--	--	--	--	--	--
Bluegill (TN)	--	--	--	--	--	1.5

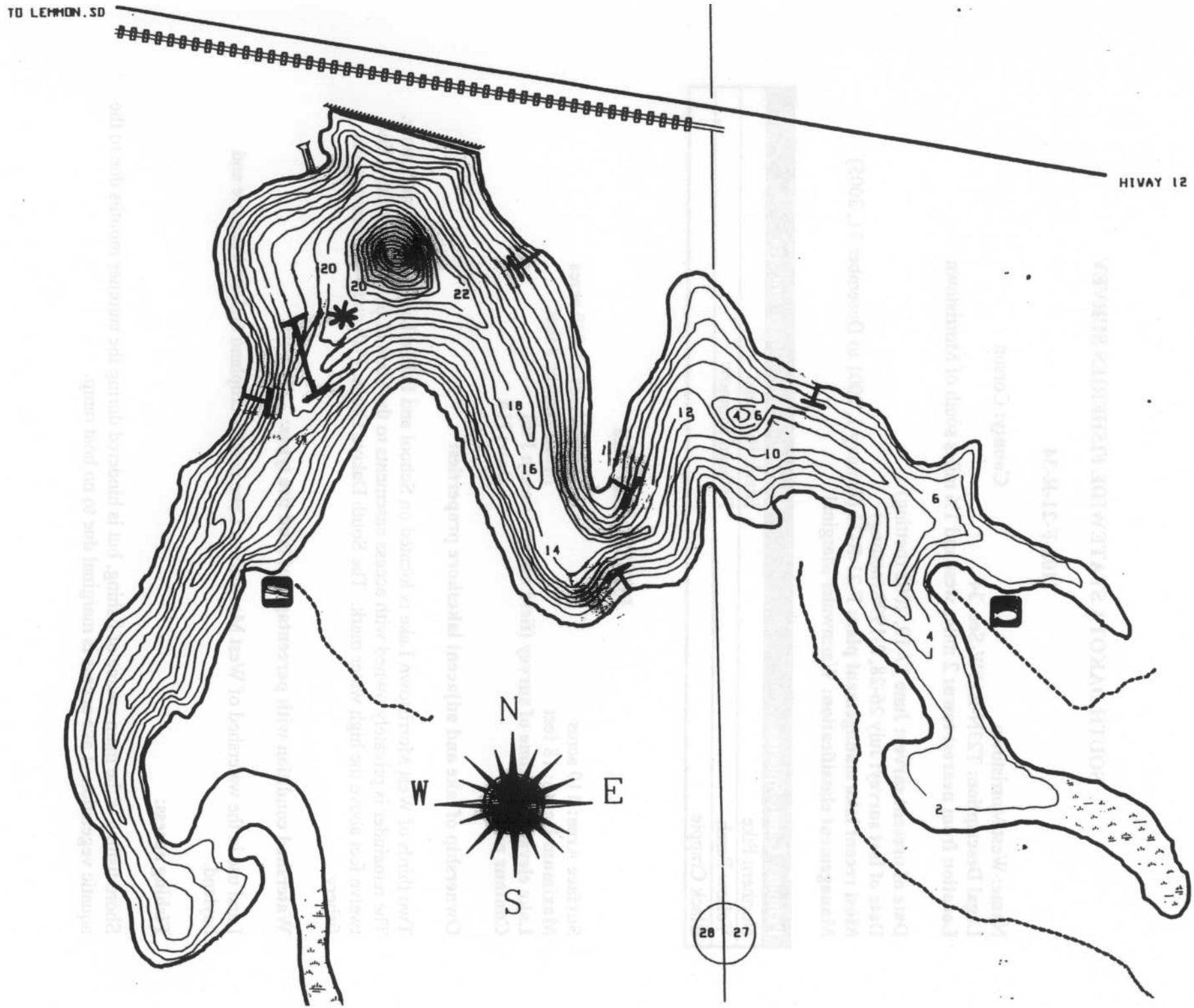
Table 8. Stocking records from 1995 to the present for East Morristown Lake, Corson County.

Year	Number	Species	Size
1995	2,500	Yellow Perch	Fingerling
1997	9,600	Largemouth Bass	Fingerling
1998	200	Black Crappie	Adult
1999	135	Bluegill	Adult
2000	824	Bluegill	Adult
2001	80	Black Crappie	Adult
2002	124	Black Crappie	Adult

RECOMMENDATIONS

1. Introduce another predator species into the system in the next year or two. A possible candidate could be walleye or largemouth bass.

2. Resurvey in 2004 or 2005 to monitor the fish populations in East Morristown Lake.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SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: West Morristown **County:** Corson
Legal Description: T23N-R19W-Sec. 34
Location from nearest town: 2 miles west and 1/4 miles south of Morristown

Date of present survey: June 17-19, 2002 (netting)
Date of last survey: July 26-28, 2-1999 (netting)
Most recent lake management plan: F-21-R-33 (January 1, 2001 to December 31, 2005)
Management classification: Warmwater Marginal

Primary Game Species	Secondary and Other Species
Northern Pike	Black Bullhead
Yellow Perch	Fathead Minnow
Black Crappie	

PHYSICAL DATA

Surface Area: 110 acres **Watershed:** 13,000 acres
Maximum Depth: 18 feet **Mean Depth:** 8 feet
Lake elevation at time of survey (field observations): Full
Contour map: No **Date:** NA

Ownership of lake and adjacent lakeshore properties:

Two thirds of West Morristown Lake is located on School and Public Lands in Corson County. The remainder is privately owned with access easements to the State of South Dakota to a line twelve feet above the high water mark. The South Dakota Game, Fish and Parks manage the fishery.

Watershed condition with percentages of land use types:

Land use in the watershed of West Morristown Lake is 60% cropland and 40% pasture and hayland.

Fishing access:

Shore fishing is the main source of fishing, but is hindered during the summer months due to the aquatic vegetation. Lake access is marginal due to no boat ramp.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The dam grade and spillway area is in good condition. There is no boat ramp at West Morristown and access is poor.

Field observations of aquatic vegetation condition:

Emergent vegetation is scattered throughout the entire lake and heaviest in the upper end. During the summer, the entire lake is covered with submergent vegetation.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident at the time of this survey. Water clarity was poor with a secchi disc reading of 1.5 feet. Other water quality characteristics were measured in the field on June 17, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from West Morristown, Corson County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	66	2.90	22.6	364	525	8.5	1.5
A	12	65	2.66	7.8	237	489	8.0	

BIOLOGICAL DATA

Methods:

West Morristown Lake was sampled on June 17-19, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and 3/4 in. knotted mesh. One experimental gill net was also set. The gill net had 150 ft. x 6 ft. with 25 ft panels of/2,'/4, 1, 1-1/4, 1-1/2, and 2 inch monofilament mesh. No electrofishing was done during this survey. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Gill net catch

Black bullheads totally dominate the fish population in West Morristown Lake at 97.5%. Northern pike was the other species sampled by the gill net.

Table 2. Total catch of one, 150 ft. experimental gill nets at West Morristown, Corson County, June 17-19, 2002.

Species	#	%	CPUE	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	268	97.5	268	35.6	0	0	96
Northern Pike	7	2.5	7	3.4	100	29	82

* Four years (1994, *1995,* 1997, and 1999)

Trap Net Catch

The trap net catch was also dominated by black bullheads at 99.9%. Two other species were sampled, black crappie (0.02%) and northern pike (0.04%).

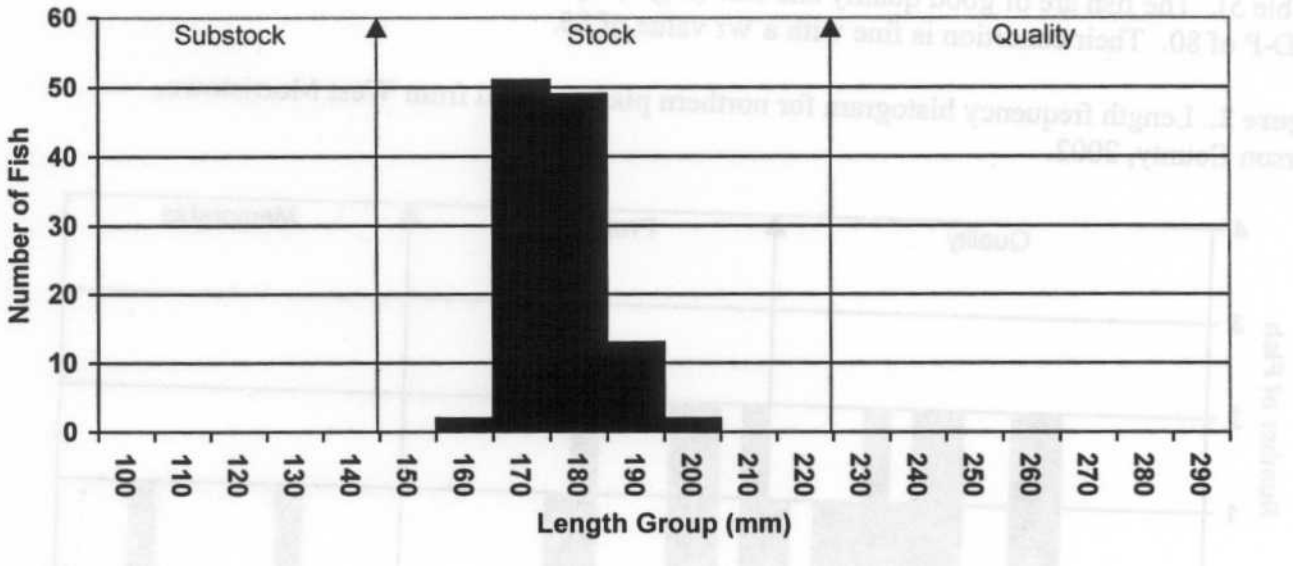
Table 3. Total catch of ten, overnight 3/4-inch frame nets at West Morristown, Corson County, June 17-19. 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	25,777	99.9	2577.7	± 961.4	20.6	0	0	85
Northern Pike	11	0.04	1.1	± 0.5	2.1	100	80	85
Black Crappie	5	0.02	0.5	± 0.3	0.1	100	64	94

Black Bullhead

Black bullheads have totally dominated the fish population in West Morristown. The trap net CPUE jumped from 14.9 in 1999 to a whapping 2577.7 in 2002. The gill net CPUE has made a significant jump from 142.5 in 1999 to 268.0 in 2002 as well. The size structure (Figure 1) is small with trap net and gill PSD and RSD-P of zero. Their condition is fine with a combined trap and gill net Wr value of 91. The black bullhead population is an overabundant stunted population.

Figure 1. Length frequency histogram for black bullhead sampled from West Morristown, Corson County, 2002.



Black Crappie

West Morristown has a very small black crappie population that is probably a result of the 245 adults stocked in 1998. The five fish sampled were of good size between 240-290 mm. Growth appears to be good (Table 4). They are in good condition with a Wr value of 94. This population of black crappies does not naturally reproduce or if they do, the black bullheads severely limit it.

Table 4. Average back-calculated lengths (mm) for each age class of black crappie sampled *from West Morrristown, Corson County 2002*

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
1998	4	2	86	161	215	245		
1997	5	2	78	158	243	264	279	
1996	6	1	81	125	170	244	267	281
All Classes		**5**	**82**	**148**	**209**	**251**	**273**	**281**
Statewide Mean			83	147	195	229	249	
Region II Mean			75	132	177	209	235	
SLI* Mean			78	134	180	209	226	

* Small Lakes and Impoundments

Northern Pike

The northern pike population's current CPUE of 1.1 has declined from the previous survey's 2.5 (Table 5). The fish are of good quality and size (Figure 2) with a frame net PSD of 100 and an RSD-P of 80. Their condition is fine with a Wr value of 85.

Figure 2. Length frequency histogram for northern pike sampled from West Morristown, Corson County, 2002.

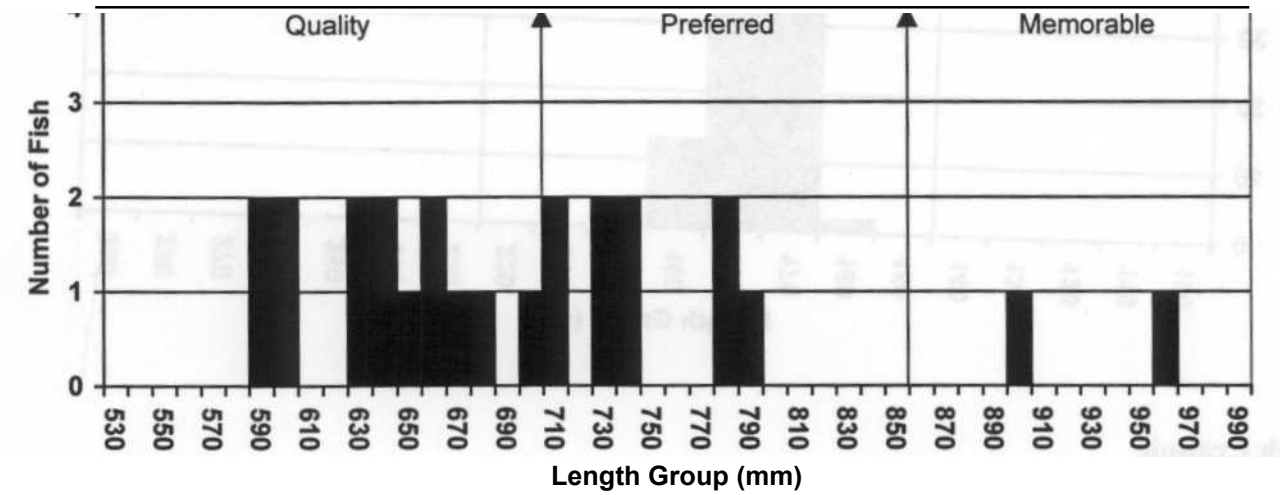


Table 5. Gill net (GN) and trap net (TN) CPUE for all species sampled from 1994 (the year after filled up from going dry) to the present for West Morristown, Corson County.

Species	1994	1995	1997	1999	2002
Black Bullhead (GN)	--	--	--	142.5	268.0
Black Bullhead (TN)	0.63	0.25	66.8	14.88	2577.7
Black Crappie (GN)	--	--	--	0.5	--
Black Crappie (TN)	0.13	--	--	0.25	0.5
Yellow Perch (GN)	--	--	34.0	8.0	--
Yellow Perch (TN)	--	0.63	1.0	0.25	--
Northern Pike (GN)	--	--	4.0	9.5	7.0
Northern Pike (TN)	--	4.0	2.0	2.5	1.1

Table 6. Stocking records from 1993 (the year filled back up after going dry) to the present for West Morristown, Corson County.

Year	Number	Species	Size
1993	55,000	Northern Pike	Fingerling
1993	324	Black Crappie	Adult
1994	5,500	Northern Pike	Fingerling
1995	300	Yellow Perch	Adult
1995	2,500	Yellow Perch	Fingerling
1995	11,000	Northern Pike	Fingerling
1997	10,000	Largemouth Bass	Fingerling
1998	245	Black Crappie	Adult

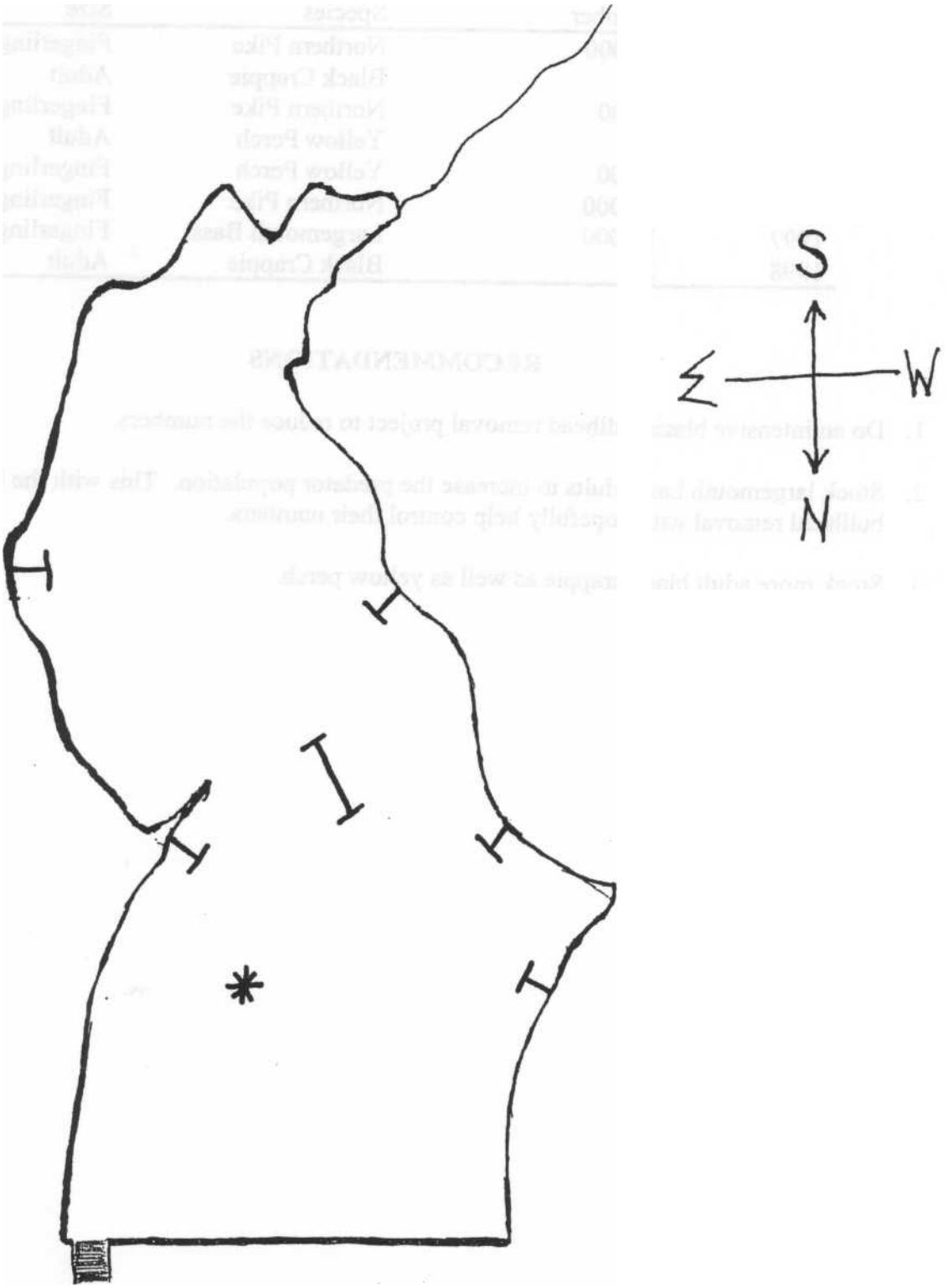
RECOMMENDATIONS

1. Do an intensive black bullhead removal project to reduce the numbers.

2. Stock largemouth bass adults to increase the predator population. This with the black bullhead removal with hopefully help control their numbers.

3. Stock more adult black crappie as well as yellow perch.

West **Morristown**



SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Trail City Dam **County: Corson**
Legal Description: T18N-R27W-Sec.35-36
Location from nearest town: ½ mile west, ¾ mile north of Trail City

Date of present survey: May 28-30, 2002 (netting)
Date of last survey: June 21-23, 1999 (netting), September 28, 1999 (electrofishing)
Most recent lake management plan: F-21-R-32 (January 1, 2000 to December 31, 2004)
Management classification: Warmwater Semi-Permanent

Primary Game Species	Secondary and Other Species
Northern Pike	Black Crappie
Yellow Perch	Black Bullhead
	Largemouth Bass

PHYSICAL DATA

Surface Area: 80 acres **Watershed:** 4,480 acres
Maximum Depth: 16 feet **Mean Depth:** 5 feet
Lake elevation at time of survey (field observations): 3 feet low
Contour map: No **Date:** NA

Ownership of lake and adjacent lakeshore properties:

Trail City Dam is privately owned with an access easement to the State of South Dakota on the southeast corner of the lake for a boat ramp and parking lot. The dam grade is a Corson County gravel road. The South Dakota Game, Fish and Parks manage the fishery.

Watershed condition with percentages of land use types:

Trail City Dam's watershed is 80% pastureland and 20% cropland. The immediate area is pasture, which is normally overgrazed.

Fishing access:

There is a boat ramp on the southeast corner of the lake providing access and a little shore fishing around the ramp.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The boat ramp, spillway, and dam grade are all in good condition.

Field observations of aquatic vegetation condition:

Emergent vegetation surrounds the entire lake except for the dam grade. A little submergent vegetation surrounds the entire lake edge out to the depth of seven feet.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident during the 2002 survey. Water clarity is poor with a secchi disc reading of 1.5 feet. Other water quality characteristics were measured in the field on May 30, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	63.5	7.75	42.6	315	930	8.0	1.5

BIOLOGICAL DATA

Methods:

Trail City Dam was sampled on May 28-30, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and ¾ in. knotted mesh. Two experimental gill nets were also set. The gill nets are 150 ft. x 6 ft. with 25 ft panels of %z, ¾, 1, 1-1/4, 1-1/2, and 2 inch monofilament mesh. No electrofishing was done during this survey. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Gill net catch

Black bullheads dominated the gill net catch at 90.1 %, with yellow perch and northern pike (5.6% and 4.2% respectively) also being sampled.

Table 2. Total catch of two, 150 ft. experimental gill nets at Trail City Dam, Corson County, May 28-30, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	192	90.1	96.0	± 64.6	14.5	25	0	91
Yellow Perch	12	5.6	6.0	± 3.1	21.0	36	0	**88**
Northern Pike	9	4.2	4.5	± 10.8	7.0	100	44	86

* Two years (1997 & 1999, a severe winterkill in 1997, but was restocked before the survey)

Trap Net Catch

Black bullhead also dominated the trap net catch at 86.4%. Other species sampled were black crappie (6.1 %), northern pike (4.0%), yellow perch (3.4%), and bluegill (0.1 %).

Table 3. Total catch of ten, overnight 3/4-inch frame nets at Trail City Dam, Corson County, May 28-30, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	1053	86.4	105.3	± 47.0	162.4	24	1	--
Black Crappie	74	6.1	7.4	± 5.0	0.3	78	42	95
Northern Pike	49	4.0	4.9	± 1.6	3.5	100	28	83
Yellow Perch	42	3.4	4.2	± 1.9	2.4	31	0	85
Bluegill	1	0.1	0.1	± 0.1	0.0	--	--	98

* Two years (1997 & 1999, a severe winterkill in 1997, but was restocked before the survey)

Black Crappie

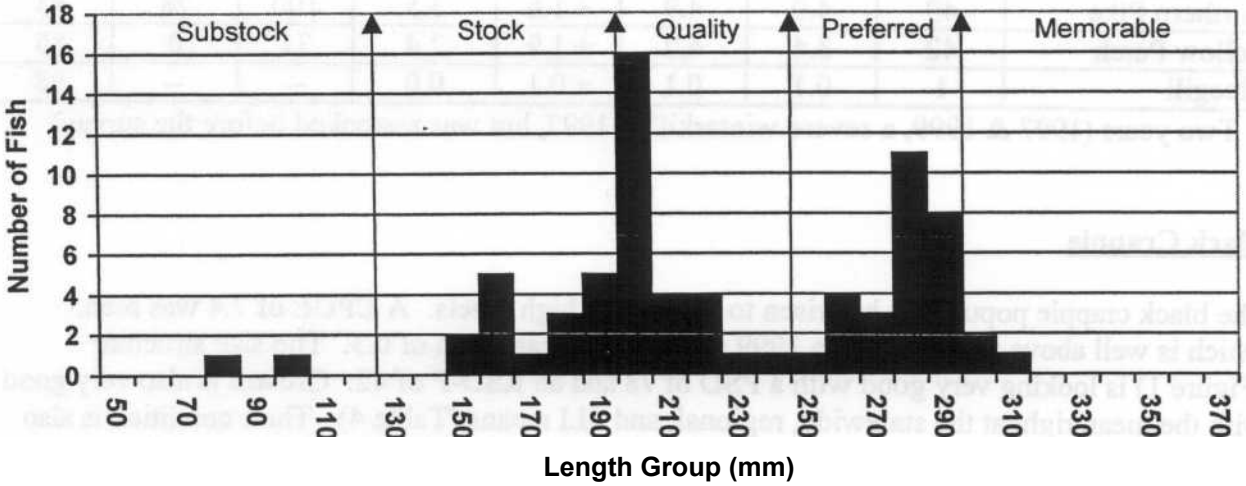
The black crappie population has risen to its all time high levels. A CPUE of 7.4 was seen, which is well above the 0.1 seen in 1999 and the two year mean of 0.3. The size structure (Figure 1) is looking very good with a PSD of 78 and an RSD-P of 42. Growth is also very good with the mean right at the statewide, regional, and SLI means (Table 4). Their condition is also very good with a Wr value of 95. Hopefully with the reduced black bullhead number, the black crappie population will continue to get better and produce some really nice fish.

Table 4. Average back-calculated lengths (mm) for each age class of black crappie sample in Trail City Dam, Corson County, 2002.

			Back-calculated Age						
Year Class	Age	N	1	2	3	4	5	6	7
2001	1	1	97						
2000	2	8	86	160					
1999	3	27	80	150	200				
1998	4	3	85	150	186	206			
1997	5	27	91	151	220	252	275		
1996	6	4	102	157	201	248	274	295	
1995	7	1	69	107	128	152	178	205	232
All Classes		**71**	**87**	**146**	**187**	**214**	**242**	**250**	**232**
Statewide Mean			83	147	195	229	249		
Region II Mean			75	132	177	209	235		
SLI* Mean			78	134	180	209	226		

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for black crappie sampled in Trail City Dam, Corson County, 2002.



Yellow Perch

The yellow perch population in Trail City Dam is continually improving. The trap net CPUE of 4.2 was better than the 0.4 in 1999. The gill net CPUE of 6.0 is below the 21.0 in 1999. The size structure decreased in the 1999 survey but has improved in the current survey (Figure 2). The PSD has increased from an average of 25 in 1999 to 34. Yellow perch growth is good in

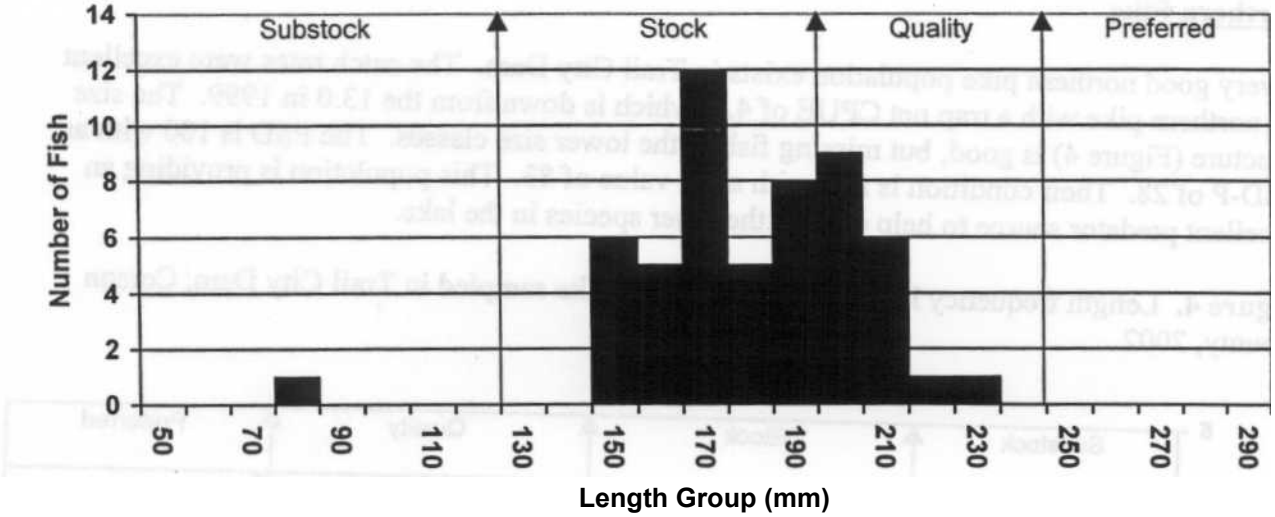
Trail City Dam with growth rates slightly better than statewide, regional, and SLI means (Table 5). The yellow perch are in fine condition with a Wr value of 87. This population will also benefit from the removal of black bullheads out of this system.

Table 5. Average back-calculated lengths (mm) for each age class of yellow perch sampled in Trail City Dam, Corson County, 2002.

			Back-calculated Age			
Year Class	Age	N	1	2	3	4
2000	2	28	111	170		
1999	3	22	93	163	198	
1998	4	2	112	153	200	224
All Classes		**52**	**105**	**162**	**199**	**224**
Statewide Mean			86	145	190	220
Region II Mean			91	152	196	219
SLI* Mean			87	142	185	205

* Small Lakes and Impoundments

Figure 2. Length frequency histogram for yellow perch sampled in Trail City Dam, Corson County, 2002.

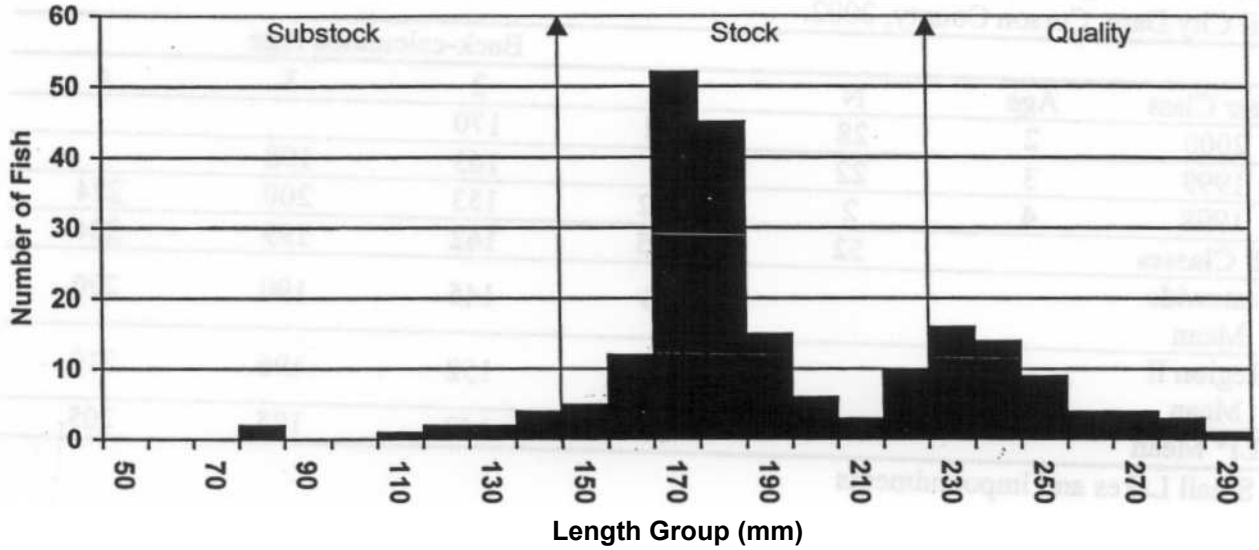


Black Bullhead

Black bullheads remain the dominant species in Trail City Dam. Their trap net CPUE of 105.3 was down a little from the 170.7 in 1999 and the two year mean of 162.4. The main reason for this decline, was the fact that a couple of weeks prior to the survey, a manual removal of black bullheads was completed. The removal lasted for four days and removed 10,150 black bullhead or 126.9/acre. Their size structure (Figure 3) has increased from the last survey, but still is not

near the management goal. Hopefully the manual removal will help increase the size structure. The PSD was 24, up for the PSD of 4 in 1999. Trail City Dam has historically had a very large black bullhead population, but with continued manual removals and bolstering the predator base in the lake, the black bullheads can be controlled and they will reach a utilizable size.

Figure 3. Length frequency histogram for black bullhead sampled in Trail City Dam, Corson County, 2002.



Northern Pike

A very good northern pike population exists in Trail City Dam. The catch rates were excellent for northern pike with a trap net CPUE of 4.9, which is down from the 13.0 in 1999. The size structure (Figure 4) is good, but missing fish in the lower size classes. The PSD is 100 with an RSD-P of 28. Their condition is fine with a Wr value of 83. This population is providing an excellent predator source to help control the other species in the lake.

Figure 4. Length frequency histogram for northern pike sampled in Trail City Dam, Corson County, 2002.

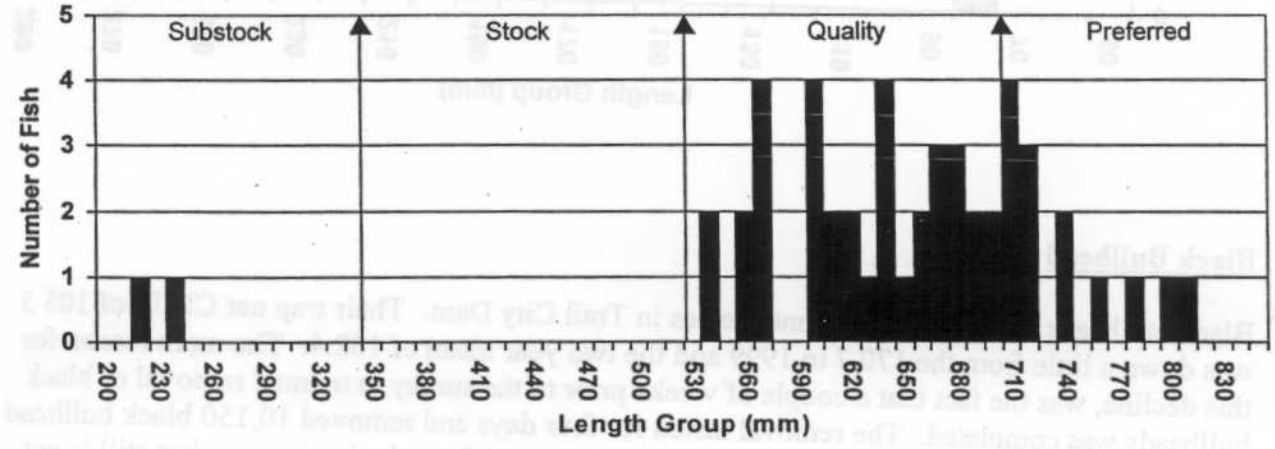


Table 8. Stocking records from the winterkill in 1996/97 to the present for Trail City Dam, Corson County.

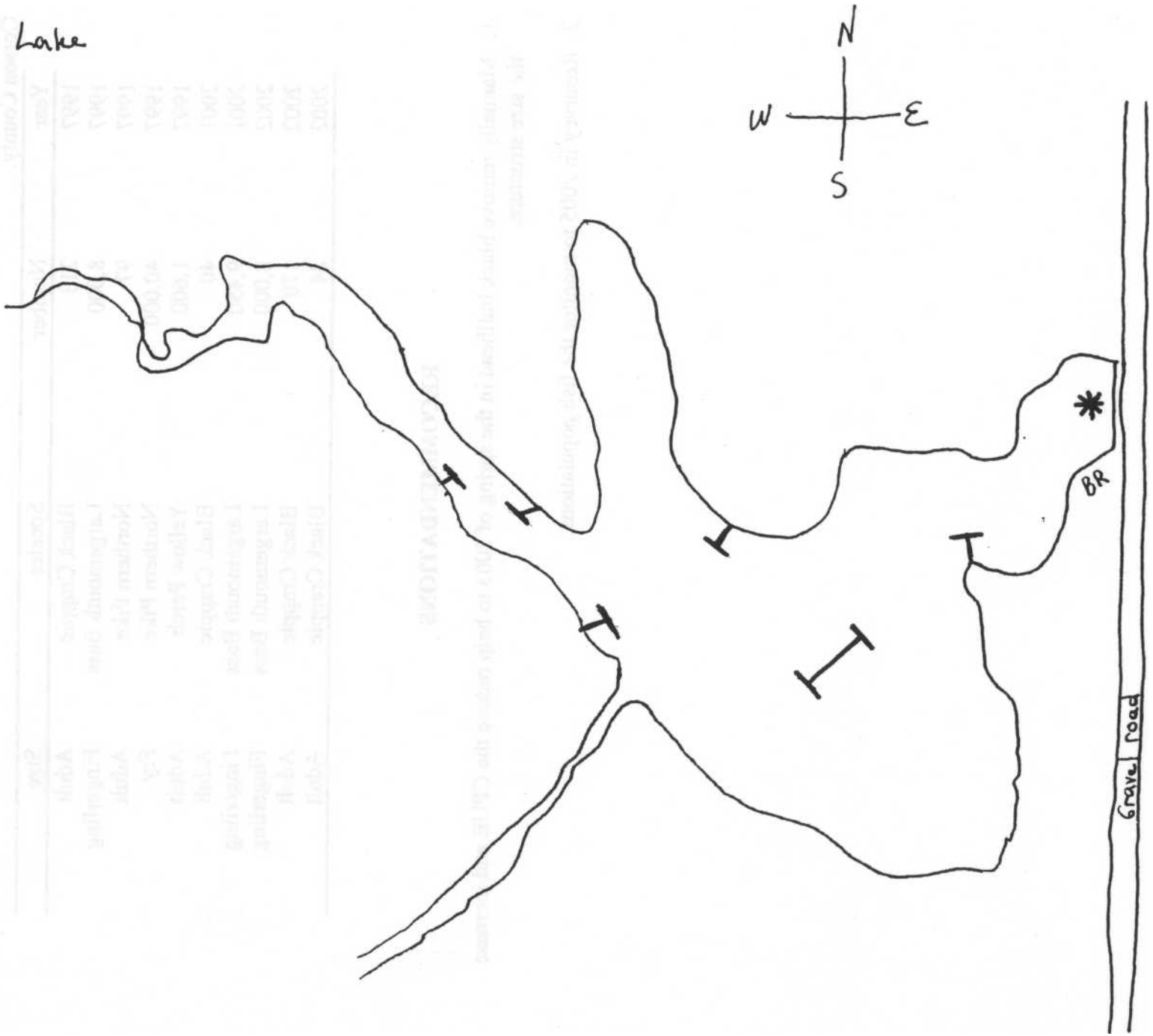
Year	Number	Species	Size
1997	213	Black Crappie	Adult
1997	8,000	Largemouth Bass	Fingerling
1997	97	Northern Pike	Adult
1997	40,000	Northern Pike	Fry
1997	1,600	Yellow Perch	Adult
2001	40	Black Crappie	Adult
2001	9,450	Largemouth Bass	Fingerling
2002	8,000	Largemouth Bass	Fingerling
2002	170	Black Crappie	Adult
2002	84	Black Crappie	Adult

RECOMMENDATIONS

1. Manually remove black bullhead in the spring of 2003 to help reduce the CPUE and increase the size structure.

2. Resurvey in 2005 to monitor the fish populations.

. Trail City Lake



SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Eagle Butte Lake **County:** Dewey
Legal Description: T13N-R24W-Sec. 32
Location from nearest town: 2 miles north and 1 mile east of Eagle Butte

Date of present survey: June 3-5, 2002 (netting)
Date of last survey: July 12-14, 1999 (netting)
Most recent lake management plan: F-21-R-26
Management classification: Warmwater Semi-Permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Walleye
Black Crappie	Black Bullhead

PHYSICAL DATA

Surface Area: 70 acres **Watershed:** 6, 000 acres
Maximum Depth: 25 feet **Mean Depth:** 13 feet
Lake elevation at time of survey (field observations): 4 feet low
Contour map: No **Date:** NA

Ownership of lake and adjacent lakeshore properties:

In 1987, the easements and title to the lake were transferred from the State of South Dakota to the City of Eagle Butte. Private land surrounds the lake.

Watershed condition with percentages of land use types:

The watershed of Eagle Butte Lake is 40% cropland, 58% pastureland and the remaining 2% is buildings. The City of Eagle Butte is nearing completion of construction of a golf course on the west edge of the lake.

Fishing access:

Eagle Butte Lake has a poor boat ramp for water access and becomes unusable during periods of low water. There is also shore-fishing opportunity around most of the lake. Shore fishing may be limited due to emergent vegetation.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The dam grade, spillway and boat ramp are all in good condition. The access road is a dirt trail, which becomes nearly impassable when wet.

Field observations of aquatic vegetation condition:

Bulrushes and cattails surround the entire lake except along the dam grade. Little submergent vegetation was observed during the survey.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident during this year's survey. Water clarity was poor with a secchi disc reading of 1.5 feet. Other water quality characteristics were measured in the field on June 3, 2002, using a HACH water quality test kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No

Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Eagle Butte Lake, Dewey County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	60	4.05	27.2	138	1739	8.0	1.5
A	16	56	3.28	30.0	153	1720	8.0	

BIOLOGICAL DATA

Methods:

Eagle Butte Lake was sampled on June 3-5, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and ¾ in. knotted mesh. No experimental gill nets or electrofishing was done during this year's survey. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Black bullheads dominated the catches in Eagle Butte Lake during this survey at 95%. Other species surveyed were black crappie (3.0%), walleye (1.8%), northern pike (0.2%), and green sunfish (0.1 %).

Table 2. Total catch of ten, overnight 3/4-inch frame nets at Eagle Butte Lake, Dewey County, June 3-5. 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	1683	95.0	168.3	± 76.4	200.7	46	0	83
Black Crappie	53	3.0	5.3	± 3.1	0.3	96	10	93
Walleye	31	1.8	3.1	± 0.9	1.8	45	0	84
Northern Pike	3	0.2	0.3	± 0.2	0.0	--	--	89
Green Sunfish	1	0.1	0.1	± 0.1	0.0	--	--	94

* Two years (1996 & 1999, due to apparent winterkill in 1992/93)

Black Crappie

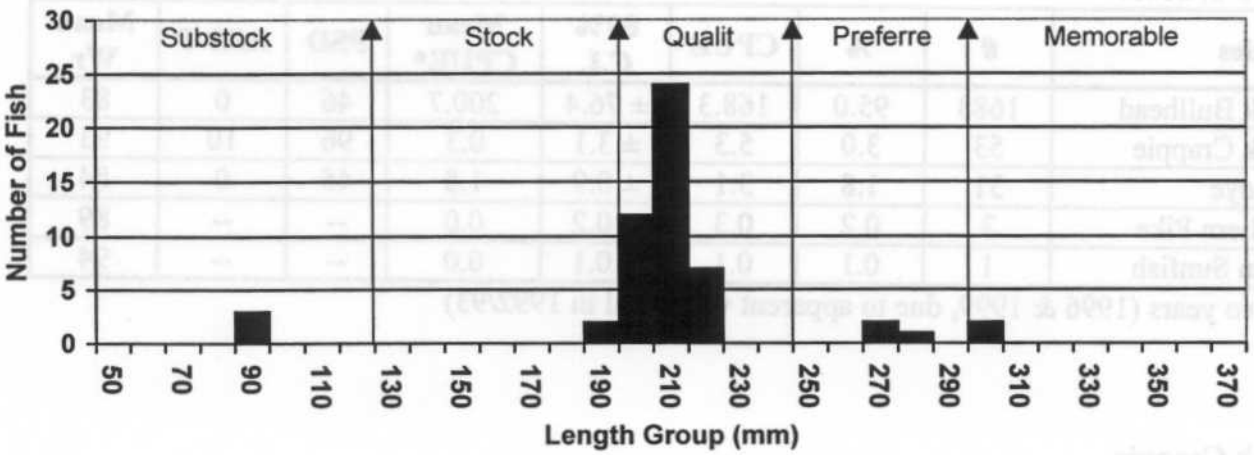
The black crappie population is once again on the increase. The CPUE was 5.3, which has significantly increased from the previous survey's 0.3. The adult stocking in 1998 (Table 5) was obviously successful and is doing well. They even produced one year class in 1999. The size structure (Figure 1) is starting to look good with a PSD of 96 and an RSD-P of 10. There were also signs of natural reproduction. Hopefully these fish will recruit to the adult population. The black crappies are in good condition with a Wr value of 93 and growth is good, with means right at statewide, regional, and SLI means (Table 3).

Table 3. Average back-calculated lengths (mm) for each age class of black crappie sampled in Eagle Butte Lake, Dewey County, 2002.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
1999	3	45	73	147	208			
1998	4	1	79	185	234	269		
1997	5	2	84	131	189	253	280	
1996	6	1	83	120	173	230	265	284
All Classes		**49**	**80**	**146**	**201**	**251**	**273**	**284**
Statewide Mean			83	147	195	229	249	
Region II Mean			75	132	177	209	235	
SLI * Mean			78	134	180	209	226	

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for black crappie sampled in Eagle Butte Lake, Dewey County, 2002.



Walleye

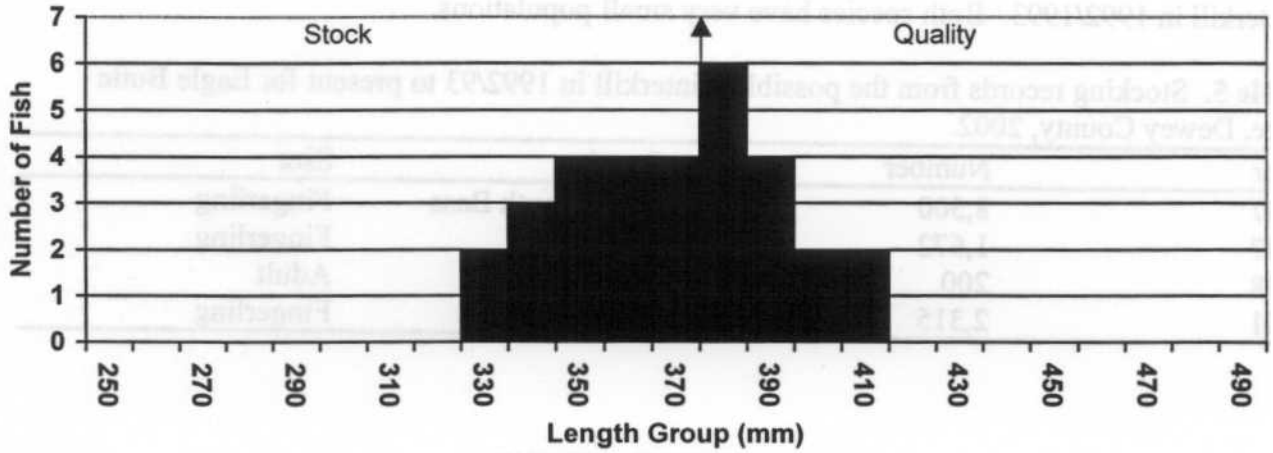
There appears to be a good year class of walleyes from the 1997 fingerling stocking. Their growth is slightly below stateside, regional and SLI means (Table 4). Their condition is fair with a Wr value of 84. It does not appear that the 2001 fingerling stocking was successful, due to the absence of any small walleye in the length frequency histogram (Figure 2). No gill nets or fall electrofishing was done, so it is possible that the 2001 stocking did work but was not seen in the trap net sampling. The overabundant black bullhead population is probably limiting the walleye population.

Table 4. Average back-calculated lengths (mm) for each age class of walleye sampled in Eagle Butte Lake, Dewey County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
1997	5	31	135	272	312	341	369
All Classes		**31**	**135**	**272**	**312**	**341**	**369**
Statewide Mean			168	279	360	425	490
Region II Mean			169	282	346	408	455
SLI* Mean			176	271	384	431	483

* Small Lakes and Impoundments

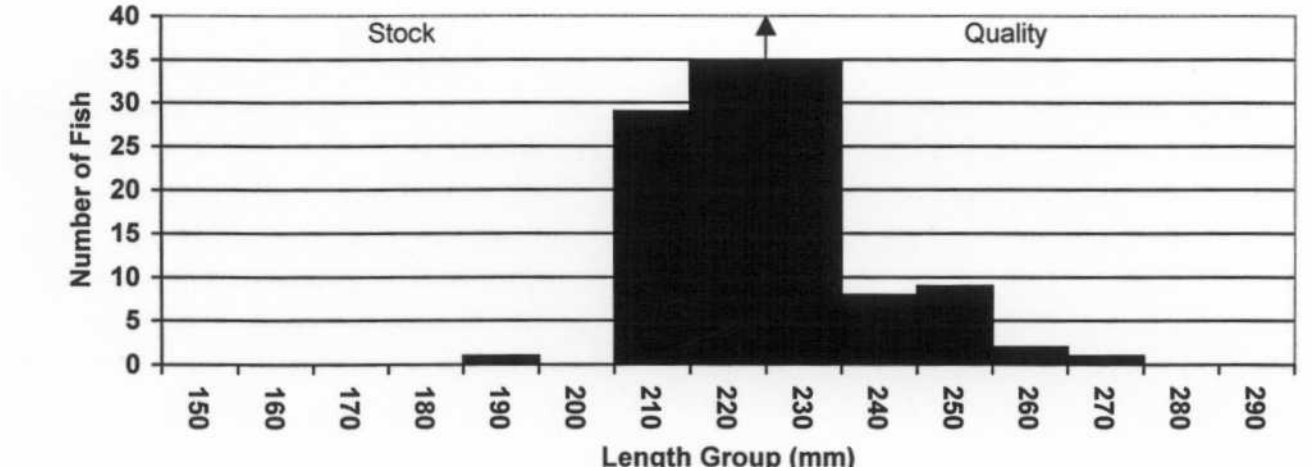
Figure 2. Length frequency histogram for walleye sampled in Eagle Butte Lake, Dewey County, 2002.



Black Bullhead

The black bullhead population is overabundant for the size of Eagle Butte Lake. The CPUE has decreased from 300.3 in 1999 to 168.3. The size structure has stayed relatively similar to the 1999 survey. The main difference is the absence of the fish in the 150-200 mm size group (Figure 3). Their condition is on the low side with a Wr value of 83. The predator stockings appear to be reducing the numbers to a more manageable number, but maybe with a manual removal project the number with become low enough to allow the predators to effectively control the population.

Figure 3. Length frequency histogram for black bullhead sampled in Eagle Butte Lake, Dewey County, 2002.



Other Species

Northern pike and green sunfish were also seen for the first time in the survey since the winterkill in 1992/1993. Both species have very small populations.

Table 5. Stocking records from the possible winterkill in 1992/93 to present for Eagle Butte Lake, Dewey County, 2002.

Year	Number	Species	Size
1997	8,500	Largemouth Bass	Fingerling
1997	1,672	Walleye	Fingerling
1998	200	Black Crappie	Adult
2001	2,315	Walleye	Fingerling

RECOMMENDATIONS

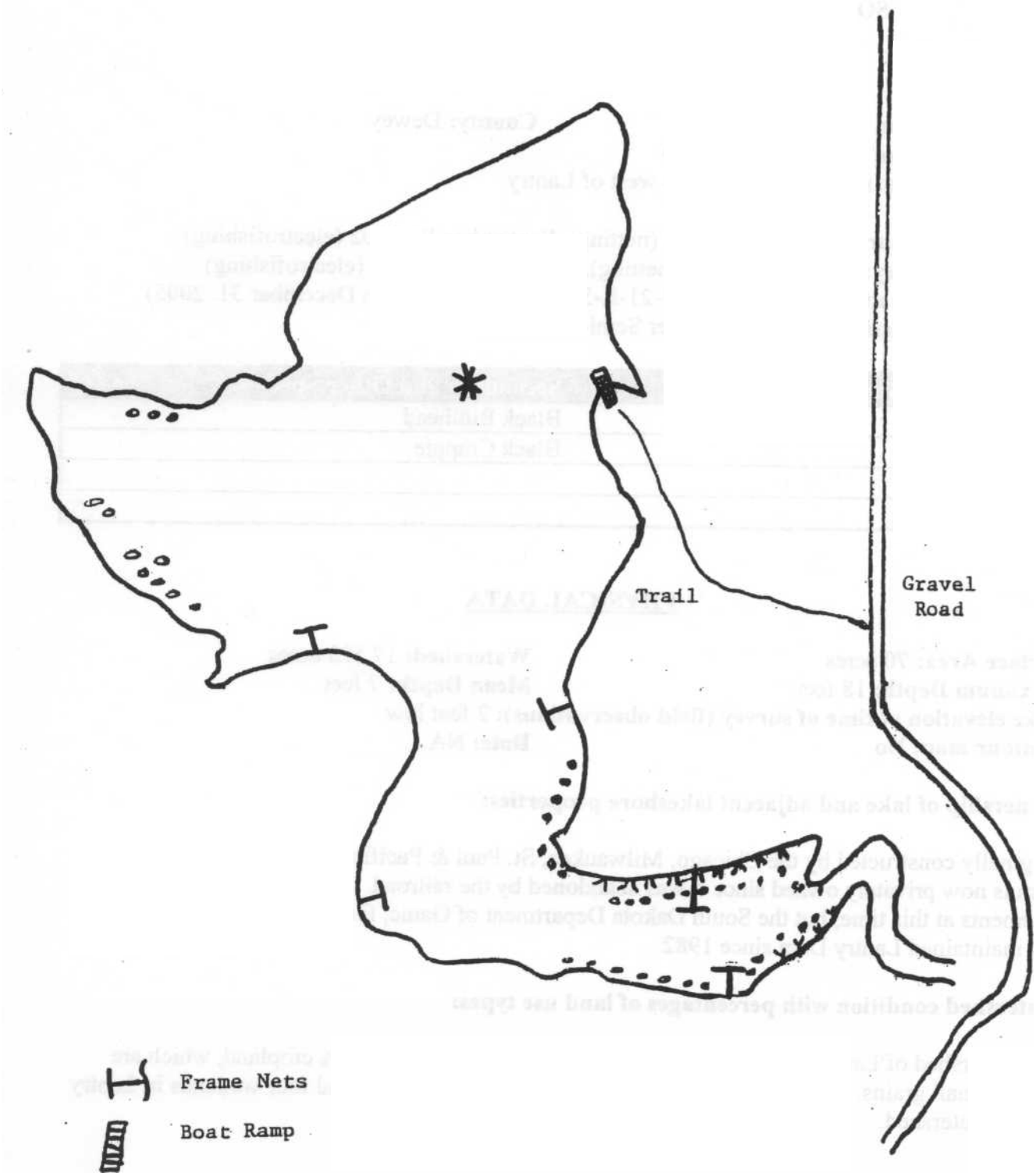
1. Stock adult black crappies to supplement the population that is starting to take off.

2. Manually remove black bullheads from Eagle Butte Lake.

3. Stock more walleye fingerlings to build up the predator population to control the black bullhead population.

4. Stock prespawn adult largemouth bass to build up the predator population to control the black bullhead population.

EAGLE BUTTE LAKE



Emergent

Submergent

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Lantry Dam County: Dewey
Legal Description: T12N-R22W-Sec. 9
Location from nearest town: 1 ½ miles west of Lantry

Date of present survey: June 3-5, 2002 (netting), September 30, 2002 (electrofishing)
Date of last survey: July 12-14, 1999 (netting), September 22, 1999 (electrofishing)
Most recent lake management plan: F-21-R-33 (January 1, 2001 to December 31, 2005)
Management classification: Warmwater Semi-Permanent

Primary Game Species	Secondary and Other Species
Northern Pike	Black Bullhead
Yellow Perch	Black Crappie
Bluegill	
Largemouth Bass	

PHYSICAL DATA

Surface Area: 70 acres **Watershed:** 17,523 acres
Maximum Depth: 18 feet **Mean Depth:** 7 feet
Lake elevation at time of survey (field observations): 2 feet low
Contour map: No **Date:** NA

Ownership of lake and adjacent lakeshore properties:

Originally constructed by the Chicago, Milwaukee, St. Paul & Pacific Railroad in 1910, Lantry Dam is now privately owned since it was abandoned by the railroad. There are no known easements at this time, but the South Dakota Department of Game, Fish and Parks has surveyed and maintained Lantry Dam since 1982.

Watershed condition with percentages of land use types:

The watershed of Lantry Dam consists of 31 % native grassland and 69% cropland, which are mostly small grains. There are twenty-two small dams, four dugouts and four wetlands in Lantry Dam's watershed.

Fishing access:

An old dirt trail leads to Lantry Dam, but may become impassible during wet conditions. There is no formal boat ramp at the end of the trail, but the bottom is hard enough so that a smaller boat can be launched. Some shoreline fishing opportunity does exist in areas around the dam.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

Lantry's dam and spillway appear to be in good condition. Access is provided by a dirt trail on the lake's west side. Lantry has no boat ramp, but small boats can be launched.

Field observations of aquatic vegetation condition:

Emergent vegetation is present along the shoreline in the upper 1/3 of the dam. Large amounts of terrestrial vegetation and woody debris were observed along the shoreline. Small amounts of submergent vegetation inhabited the shallow areas of Lantry Dam.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident during the lake survey. High turbidity was evident during the fall electrofishing that caused very high conductivity readings. This was probably from the cattle that were grazing on the pasture around the lake and watering in the lake. Water clarity was good during the survey with a secchi disc reading of 3.5 feet. The water clarity was much lower at the time of electrofishing. Other water quality characteristics were measured in the field on June 3, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemist results from Lantry Dam, Dewey County, 2002.

Station	Depth ft	Temp F	DO (ppm)	CO2 ppm	ALK (m /1)	Hardness (m /1)	pH	Secchi disc (ft)
A	Surface	61	6.17	14.4	223	740	8.5	3.5
A	15	59	3.5	17	194	720	8.0	

BIOLOGICAL DATA

Methods:

Lantry Dam was sampled on June 3-5, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and 3/4 inch knotted mesh. No experimental gill nets were set this survey. On September 30, 2002, Lantry Dam was electrofished for about 30 minutes (3-ten minute transects) with pulse AC to sample the largemouth bass population. Conductivity was around 1800 ghmos. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Black bullhead and bluegill were the most abundant species sampled in this year's survey (37.3% & 36.7% respectfully) (Table2). Black crappies were also abundant at 19.2%. The other two species sampled were northern pike and yellow perch.

Table 2. Total catch of ten, overnight ¾-inch frame nets at Lantry Dam, Dewey County, June 3-5.2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	188	37.3	18.8	± 4.2	0.9	100	82	102
Bluegill	185	36.7	18.5	± 4.8	44.3	93	73	100
Black Crappie	97	19.2	9.7	± 4.5	11.3	95	42	88
Northern Pike	19	3.8	1.9	± 1.2	1.4	79	26	86
Yellow Perch	15	3.0	1.5	± 0.6	1.7	100	93	88

* Five years (1982, 1988, 1992, 1996, and 1999)

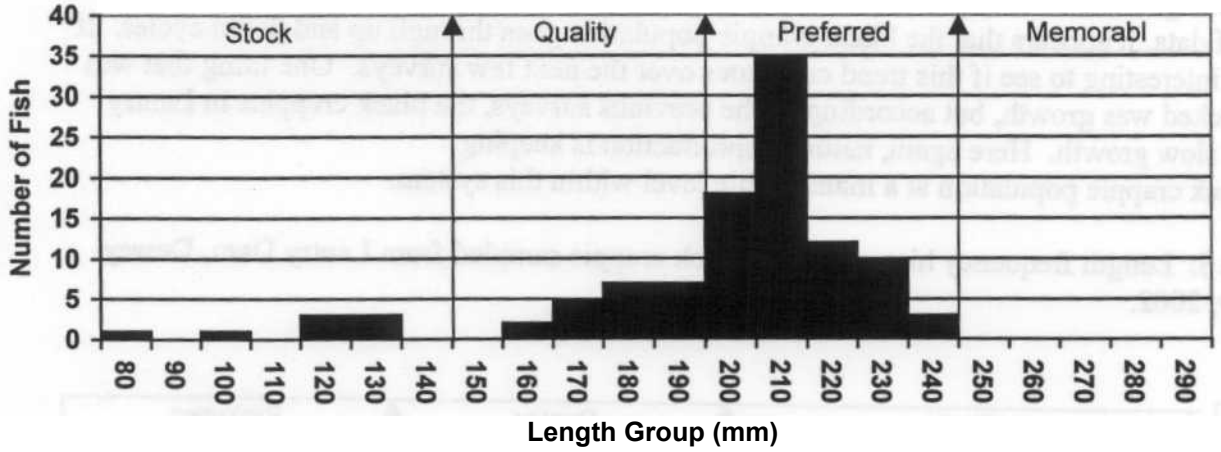
Electrofishing Catch

Thirty minutes of electrofishing was done on the night of September 30, 2002. Only 1 largemouth bass was seen and the electrofishing was not successful due to the high conductivity and turbidity of the water. Fish were being shocked 5-10 yards in front of the electrodes and would not stay in the field for sampling.

Bluegill

The bluegill population in Lantry Dam has decreased since the last survey. The bluegill population is in good shape considering the size of Lantry Dam and the number of other fish species present in the lake. The CPUE was 18.5, which is well below the 1999 survey of 34.5 and the five year mean of 44.3. The size structure is good, though, with a PSD of 93 and an RSD-P of 73. The length frequency histogram in Figure 1 also illustrates the good size structure of the bluegills. The condition of the bluegills is also excellent with a Wr value of 100. One thing that was not checked was the growth rate of the bluegills in Lantry. Natural reproduction is maintaining the bluegill population, due to only one stocking of largemouth bass in the last several years.

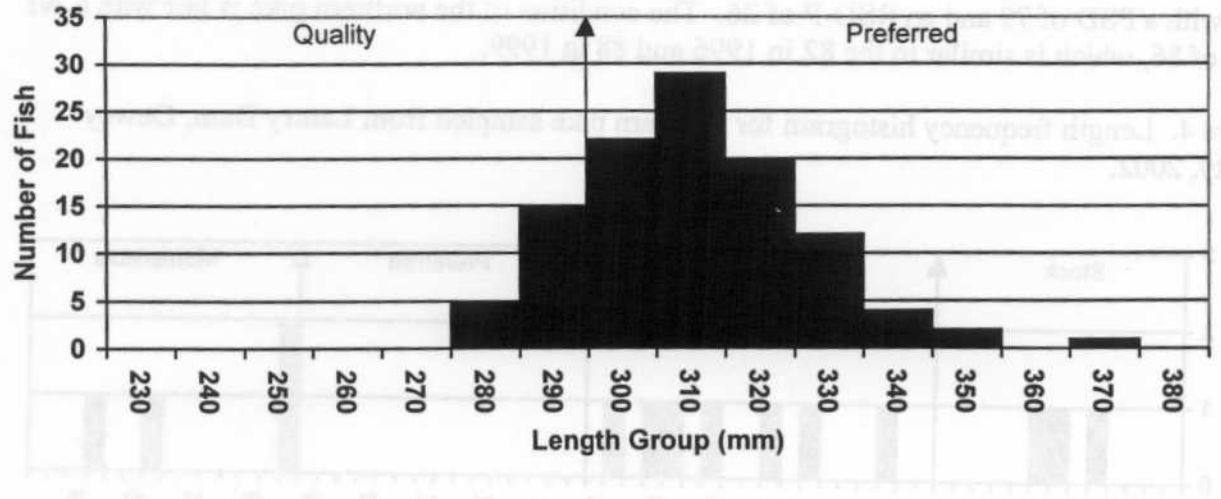
Figure 1. Length frequency histogram for bluegill sampled from Lantry Dam, Dewey County, 2002.



Black Bullhead

The black bullhead CPUE is 18.8, which has significantly increased over the five year mean of 0.9. The CPUE was only 1.3 in 1999. The size is good, though, with a PSD of 100 and an RSD-P of 82. Their condition is also good with a Wr value of 102. Figure 2 indicates probably only 1 maybe 2 year classes with no new year classes coming on. No spine samples were taken to confirm this.

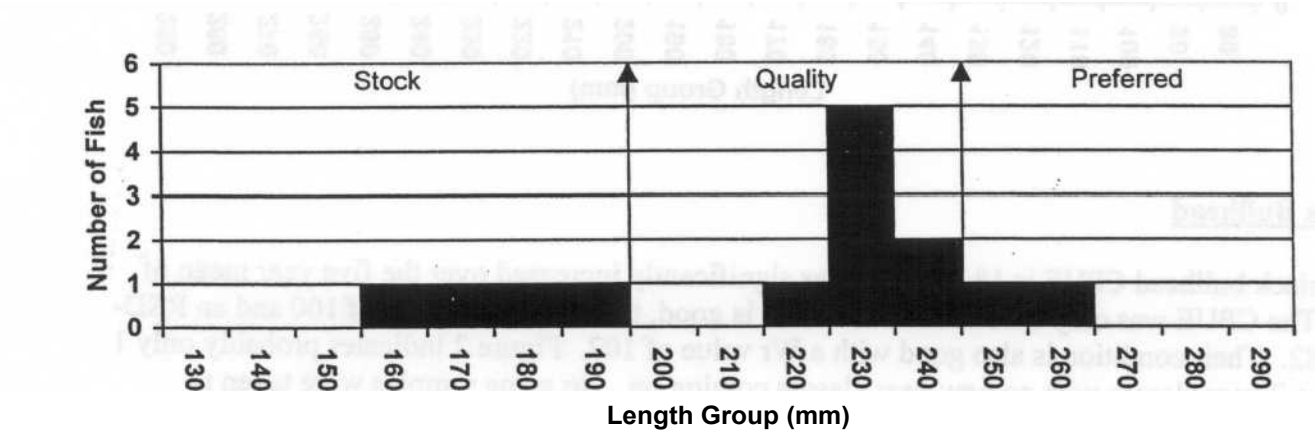
Figure 2. Length frequency histogram for black bullhead sampled from Lantry Dam, Dewey County, 2002.



Black Crappie

The black crappie population in Lantry Dam has increased from the previous three surveys. The CPUE has significantly increased from 0.3 in 1999 to the present 9.7. The size structure also looks good with a PSD of 95 and an RSD-P of 42. The length frequency histogram (Figure 3) also looks good and has improved since the last histogram in 1992. Looking at the past five years of data, it appears that the black crappie population goes through up and down cycles. It will be interesting to see if this trend continues over the next few surveys. One thing that was not checked was growth, but according to the previous surveys, the black crappies in Lantry exhibit slow growth. Here again, natural reproduction is keeping the black crappie population at a manageable level within this system.

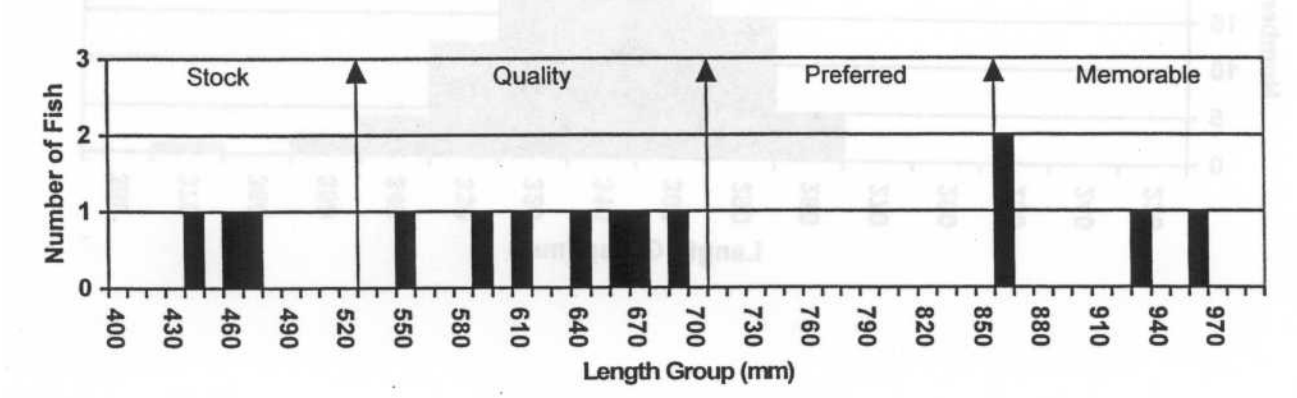
Figure 3. Length frequency histogram for black crappie sampled from Lantry Dam, Dewey



Northern Pike

The northern pike population is small, but good. There was a CPUE of 1.9, which is down from the 3.0 in 1999 but above the five year mean. The size distribution (indicated in Figure 4) is good with a PSD of 79 and an RSD-P of 26. The condition of the northern pike is fair with a Wr value of 86, which is similar to the 82 in 1996 and 88 in 1999.

Figure 4. Length frequency histogram for northern pike sampled from Lantry Dam, Dewey County, 2002.



Other Species

Nothing is known on how the largemouth bass population is doing at this time. The fall electrofishing was unsuccessful due to the high conductivity and turbidity in Lantry. It is estimated that the population must be doing fine due to the condition of all the panfish species present in the lake.

The yellow perch CPUE has increased from 0.3 in the 1999 survey to 1.5. The Wr value of the 15 perch caught was a little low at 88, which is down from 98 in the 1996 survey. The overall size was good with a PSD of 100, which increased from 78 in the 1996 survey, and a RSD-P of 93.

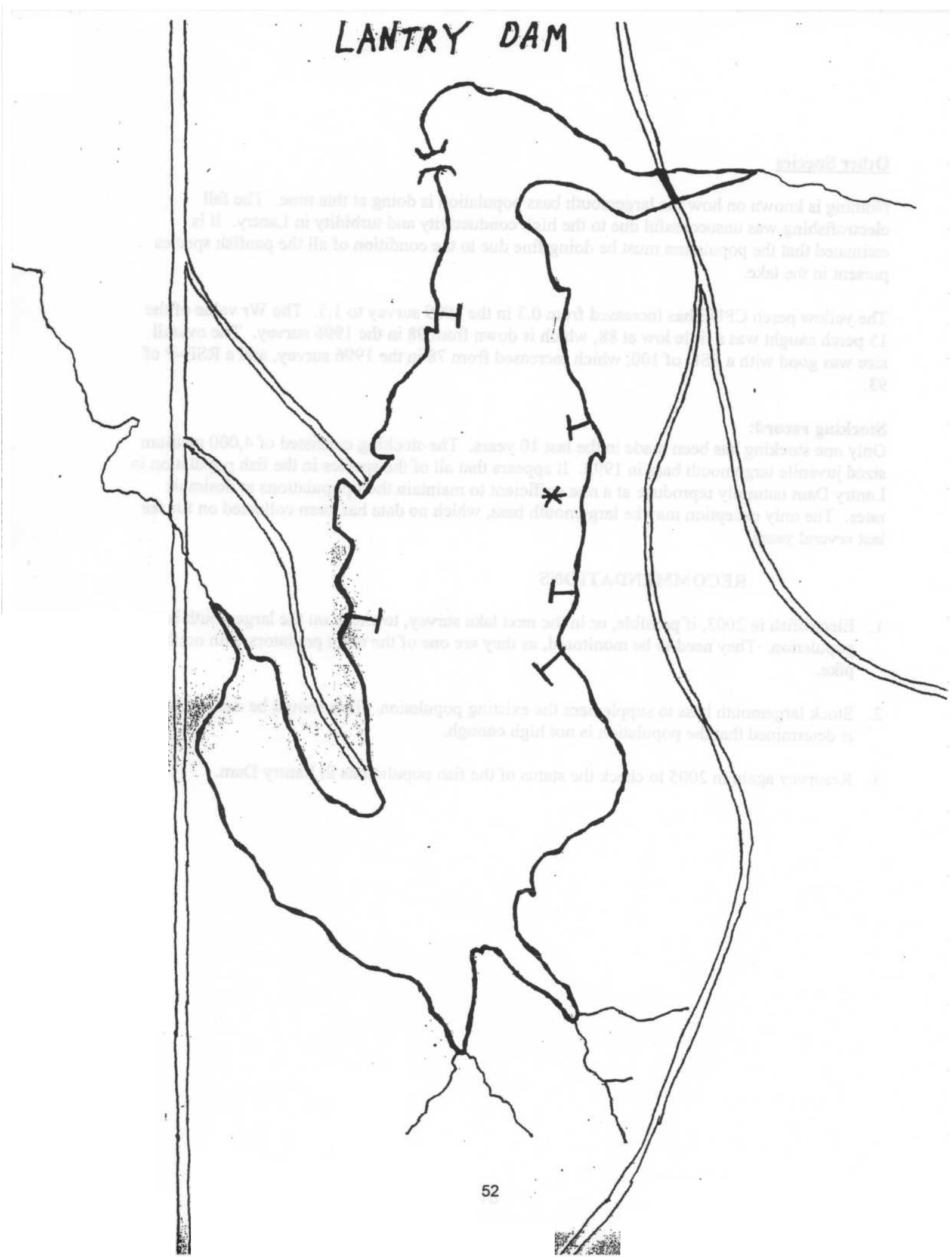
Stocking record:
Only one stocking has been made in the last 10 years. The stocking consisted of 4,000 medium sized juvenile largemouth bass in 1992. It appears that all of the species in the fish population in Lantry Dam naturally reproduce at a rate sufficient to maintain their populations at desirable rates. The only exception may be largemouth bass, which no data has been collected on for the last several years.

RECOMMENDATIONS

1. Electrofish in 2003, if possible, or in the next lake survey, to check on the largemouth bass population. They need to be monitored, as they are one of the main predators with northern pike.

2. Stock largemouth bass to supplement the existing population. This should be done only if it is determined that the population is not high enough.

3. Resurvey again in 2005 to check the status of the fish populations in Lantry Dam.


LANTRY DAM

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Burke Lake **County:** Gregory
Legal Description: T97N-R71W-Sec.32-33
Location from nearest town: 2 miles east of Burke

Date of present survey: July 8-10, 2002 (netting); September 9, 2002 (electrofishing)
Date of last survey: June 21-23, 1999 (netting)
Most recent lake management plan: F-21-R-32 (January 1, 2000 to December 31, 2004)
Management classification: Warmwater Semi-Permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Black Crappie
Bluegill	Black Bullhead
Northern Pike	Golden Shiner
Yellow Perch	Green Sunfish

PHYSICAL DATA

Surface Area: 27 acres **Watershed:** 1,280 acres
Maximum Depth: 16 feet **Mean Depth:** 9 feet
Lake elevation at time of survey (field observations): Full
Contour map: No **Date:** N/A

Ownership of lake and adjacent lakeshore properties:

The west shoreline of Burke Lake is privately owned with access easements granted to the State of South Dakota to a line twelve feet above the high water mark. The remainder of the lake is a State Recreation Area managed by the Division of Parks and Recreation. The Wildlife Division of the South Dakota Game, Fish and Parks manages the fishery.

Watershed condition with percentages of land use types:

The watershed of Burke Lake is 99% native grasses used as pastureland. The majority of the remaining watershed is cropland. A large feedlot in the watershed results in the leaching of nutrients. Immediate shoreline is recreational area and swimming beach.

Fishing access:

The northeast corner of the lake contains a boat ramp for water access. There is also an access easement to allow shore fishing around the entire lake. Shore fishing may be limited in some areas by the aquatic vegetation.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The dam grade and spillway are in good condition. The concrete plank boat ramp is in good condition and provides ample boat launching facilities for Burke Lake.

Field observations of aquatic vegetation condition:

Emergent vegetation is present primarily along the west ¼ of the lake. Submergent vegetation is not a major problem. Heavy algae blooms and duckweed are common in Burke Lake due to the heavy nutrient loads from the feedlot.

CHEMICAL DATA

Field observations of water quality and pollution problems:

Burke Lake has had a history of high nutrient levels attributed to runoff from a feedlot located on the watershed adjacent to the lake. The feedlot was relocated following the 1992-93 lake dredging project, however cattle were once again being fed on the tract of land adjacent to the lake during the spring of 1996. This coupled with a partial fish kill in early 1996 has renewed pollution concerns.

Presence of a thermocline and depth from surface: No

Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Burke Lake, Gregory County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	78	10.46	15.6	158	125	8.0	2
A	16.8	67	1.93	68.0	208	185	7.0	

BIOLOGICAL DATA

Methods:

Burke Lake was sampled on July 8-10, 2002, with ten overnight trap net sets. The trap nets have 3 ft x 5 ft. frames, 60 ft leads, and ¾ in. knotted mesh. No experimental gill nets were set during the present survey. On September 9, 2002, Burke Lake was electrofished for 40 minutes (4-ten minute transects) with pulsed AC to sample the largemouth bass population. Conductivity was 280 uhmos with a water temperature of 75 degrees F. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Black crappie and bluegill were the dominant species sampled in this survey at 60.0% and 25.3%, respectively. Other species sampled were yellow perch (9.0%), northern pike (2.6%), black bullhead (2.3%), largemouth bass (0.4%), and green sunfish (0.3%).

Table 2. Total catch of ten, overnight 3/4-inch frame nets at Burke Lake, Gregory County, July 8-10, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Crappie	438	60.0	43.8	± 9.0	35.5	47	0	107
Bluegill	185	25.3	18.5	± 7.8	35.6	86	8	105
Yellow Perch	66	9.0	6.6	± 2.9	0.9	54	2	94
Northern Pike	19	2.6	1.9	± 0.6	1.8	25	13	84
Black Bullhead	17	2.3	1.7	± 0.6	15.6	--	--	91
Largemouth Bass	3	0.4	0.3	±0.2	0.01	--	--	92
Green Sunfish	2	0.3	0.2	± 0.3	0.4	--	--	91

* Seven year mean (1979, 1982, 1985, 1989, 1993, 1996, 1999)

Electrofishing Catch

Burke Lake has a good largemouth bass population with a catch rate of 82.5 fish per hour of electrofishing.

Table 3. Total catch from four, ten-minute runs of fall nighttime electrofishing on Burke Lake, Gregory County, September 9, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Largemouth Bass	55	100	82.5± 27.0		--	25	13	104

* First time electrofishing

Largemouth Bass

This fall electrofishing was the first record for specifically sampling the largemouth bass population in Burke Lake. Although, stocking records indicate that largemouth bass have been intensely stocked for over ten years. The population does not look too bad with a catch rate of 82.5 bass per hour of electrofishing. Their size structure (Figure 1) is fair with a PSD of 25 and an RSD-P of 13. Their growth rate is slow with means well below statewide, regional, and SLI means. The combination of slow growth and the smaller size structure indicates this population

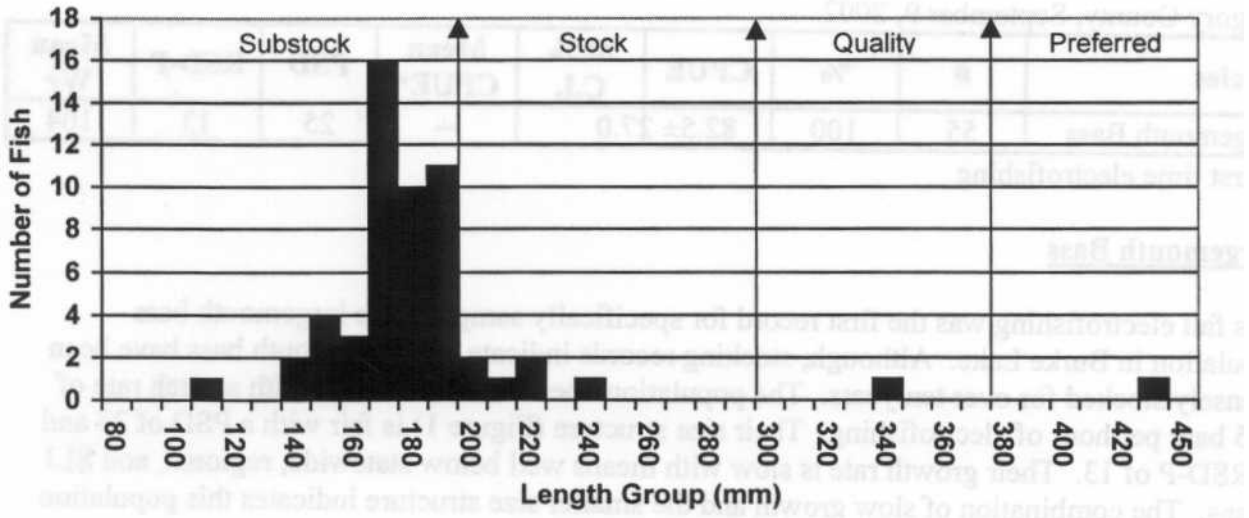
is stunting. Their condition is excellent with a Wr value of 104. They should have no problem finding food with the large number of panfish found in the system. The main function of this largemouth bass population is as the main predator species in the lake, which takes some of the concern off about the stunting, although something should be done to increase the size structure somewhat.

Table 4. Average back-calculated lengths (mm) for each age class of largemouth bass in Burke Lake, Gregory County, 2002.

			Back-calculated Age						
Year Class	Age	N	1	2	3	4	5	6	7
2002	0	1							
2001	1	45	100						
2000	2	5	106	166					
1999	3	2	113	159	218				
1998	4	1	101	131	172	214			
1995	7	1	72	127	178	228	262	322	375
All Classes		**55**	**98**	**146**	**189**	**221**	**262**	**322**	**375**
Statewide Mean			96	182	250	305	342		
Region II Mean			105	183	246	296	328		
SLI* Mean			99	183	246	299	332		

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for largemouth bass sampled by fall electrofishing from Burke Lake, Gregory County, 2002.



Black Crappie

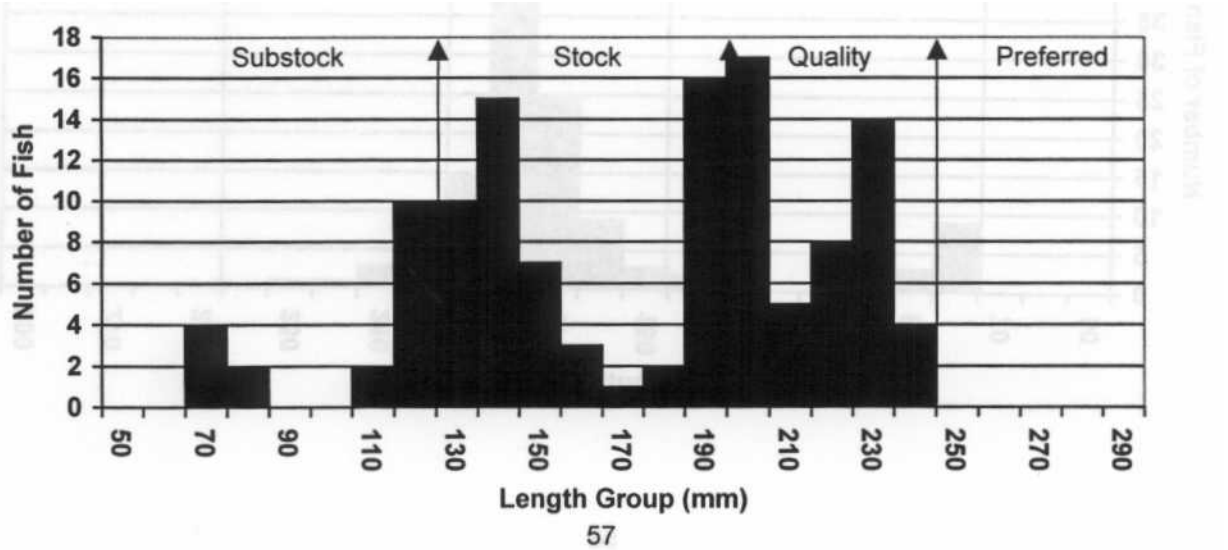
Black crappies have taken over as the dominant species seen in the trap net catch in Burke Lake with a CPUE of 43.8. This is down from the 81.9 in 1999, but is up from the seven year mean of 35.5. The most noticeable change over the past several years is that the size structure (Figure 2) has increased. The PSD of 47 is up from the 0 recorded in the 1999 survey. Fish are starting to push to the 10 inch size. Growth is good with means right at the statewide, regional, and SLI means. Their condition is very good with a Wr value of 107. This population appears to produce a year class every year with a strong year class every other year. The population almost appeared to be stunted, but with the high density of largemouth bass, it is pushing out of this state. A few fish could be removed to help the largemouth bass get the population under control and keep the size structure increasing.

Table 5. Average back-calculated lengths (mm) for each age class of black crappie in Burke Lake, Gregory County, 2002.

			Back-calculated Age			
Year Class	Age	N	1	2	3	4
2001	1	25	111			
2000	2	36	94	176		
1999	3	15	98	164	211	
1998	4	15	104	150	180	221
All Classes		**91**	**102**	**164**	**196**	**221**
Statewide Mean			83	147	195	229
Region II Mean			75	132	177	209
SLI* Mean			78	134	180	209

* Small Lakes and Impoundments

Figure 2. Length frequency histogram for black crappie sampled from Burke Lake, Gregory County, 2002.



Bluegill

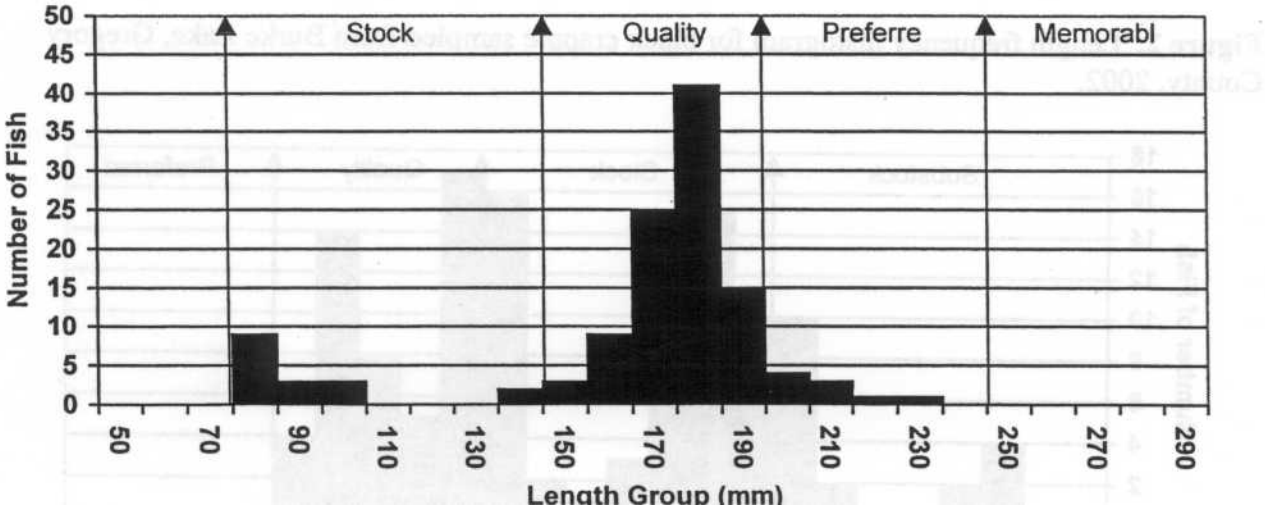
Bluegills continue to rate as one of the dominant species with black crappies. Their CPUE has decrease dramatically from 167.6 in 1999 to 18.5, which is also below the seven year mean of 35.6. The bluegill population has also increased in size structure (Figure 3) from the last few surveys. The PSD is now 86 with an RSD-P of 8, which is up from the consistent PSD of around 40 over the last several surveys. Growth is good with means right at the statewide, regional, and SLI averages. Their condition is also very good with a Wr value of 105. The bluegill population along with the black crappie population appears to be benefiting from the very good largemouth bass population. The bluegills are starting to break through with fish moving from the 6 inch category to the 8-8.5 inch range. It appears that the numbers of the panfish are now low enough, with the high density largemouth bass population, to produce a better quality panfish fishery.

Table 6. Average back-calculated lengths (mm) for each age class of bluegill sampled in Burke Lake, Gregory County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
2000	2	2	46	106			
1999	3	64	48	100	157		
1998	4	9	57	102	132	177	
1997	5	22	46	94	126	154	178
All Class		**97**	**49**	**101**	**138**	**165**	**178**
Statewide Mean			55	103	141	166	180
Region II Mean			52	97	134	164	180
SLI* Mean			53	101	138	163	180

* Small Lakes and Impoundments

Figure 3. Length frequency histogram for bluegill sampled from Burke Lake, Gregory County, 2002.



Yellow Perch

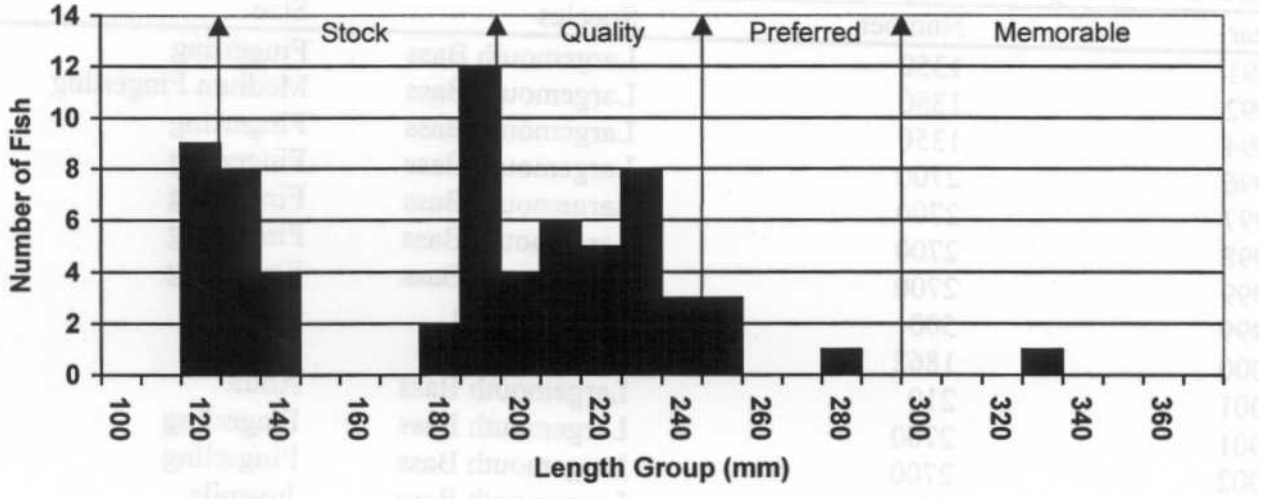
The yellow perch population is starting to also benefit from the large bass population in Burke Lake. The CPUE has increased to an all time high of 6.6. This is well above the 2.0 in the 1999 survey as well as the seven year mean of 0.9. Growth has also seen the benefits. Growth of the older fish was below average and has now increased to above average (Table 7). The young fish also have seen the benefits to have growth above the statewide, regional, and SLI means (Table 7). Their condition has also improved greatly from a Wr of 74 in 1999 to 94.

Table 7. Average back-calculated lengths (mm) for each age class of yellow perch sampled in Burke Lake, Gregory County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
2001	1	21	94				
2000	2	17	96	169			
1999	3	8	85	144	198		
1998	4	17	87	122	159	210	
1997	5	3	122	158	176	203	250
All Classes		**66**	**97**	**148**	**178**	**207**	**250**
Statewide Mean			86	145	190	220	242
Region II Mean			91	152	196	219	242
SLI* Mean			87	142	185	205	219

* Small Lakes and Impoundments

Figure 4. Length frequency histogram for yellow perch sampled in Burke Lake, Gregory County, 2002.



Northern Pike

The northern pike population has remained stable over the past several surveys. The size structure (Figure 5) looks good with a PSD of 25 and an RSD-P of 13. Their condition is fine with a Wr value of 84. They are helping the largemouth bass population in controlling the panfish populations in Burke Lake and starting to do an effective job.

Figure 5. Length frequency histogram for northern pike sampled in Burke Lake, Gregory County, 2002.

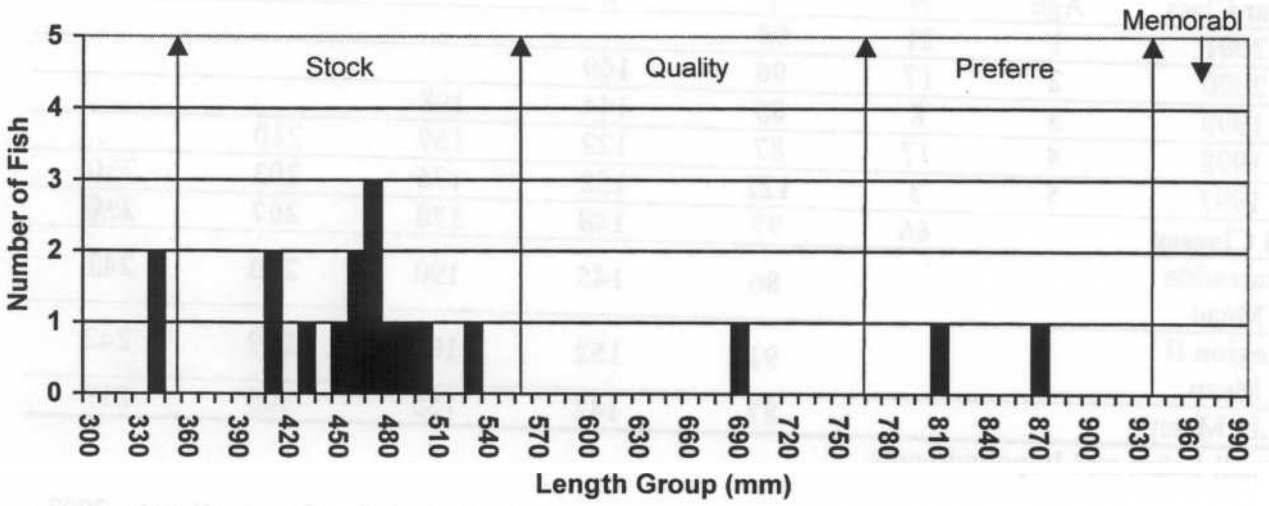


Table 8. Stocking records from 1991 to the present for Burke Lake, Gregory County.

Year	Number	Species	Size
1991	1350	Largemouth Bass	Fingerling
1992	1350	Largemouth Bass	Medium Fingerling
1994	1350	Largemouth Bass	Fingerling
1996	2700	Largemouth Bass	Fingerling
1997	2700	Largemouth Bass	Fingerling
1998	2700	Largemouth Bass	Fingerling
1999	2700	Largemouth Bass	Fingerling
1999	500	Yellow Perch	Adult
2000	1862	Yellow Perch	Juvenile
2001	210	Largemouth Bass	Adult
2001	2700	Largemouth Bass	Fingerling
2002	2700	Largemouth Bass	Fingerling
2002	34	Largemouth Bass	Juvenile
2002	36	Largemouth Bass	Adult

RECOMMENDATIONS

1. Remove black crappie to help the largemouth bass control the population as well as to increase the size structure of the population.

2. Resurvey in 2005 to monitor the fish populations.

South Dakota Department of Game Fish and Parks

Burke Lake

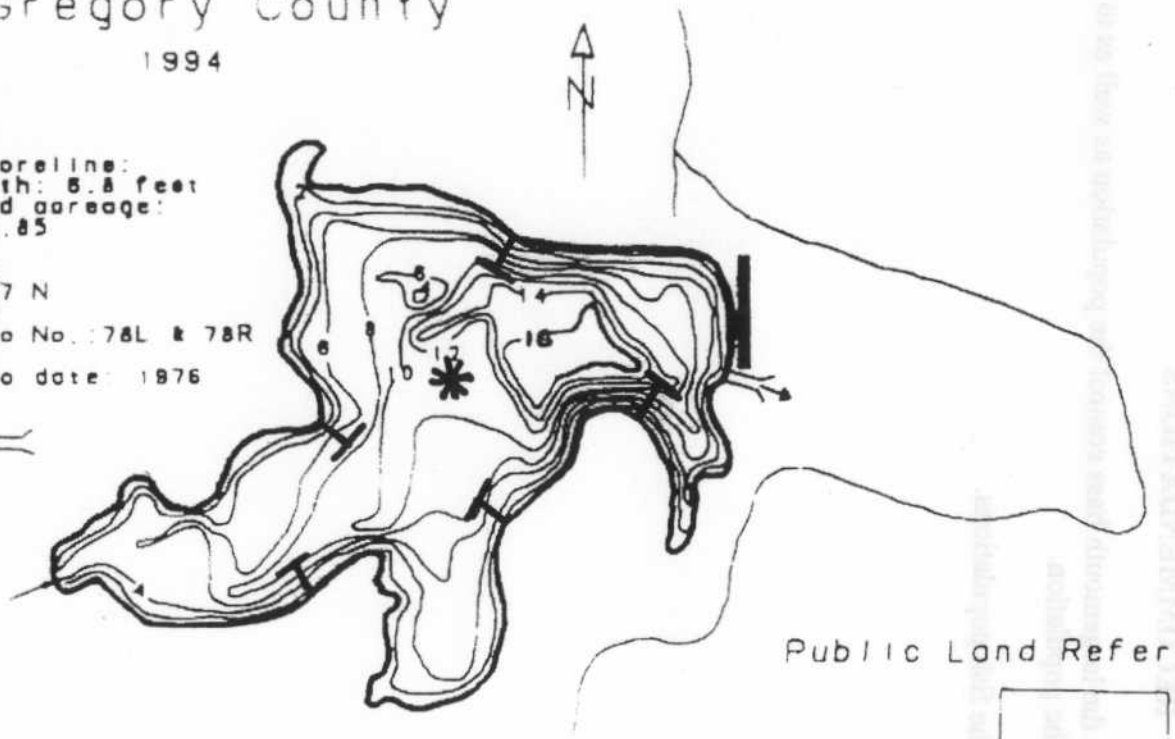
Gregory County

1994

Miles of shoreline:
Average depth: 8.8 feet
Planimetered acreage:
Volume: 198.85
Waterlevel:
Section: 32
Township: 97 N
Range: 72 W
Aerial photo No.: 78L & 78R

Aerial photo date: 1976

Dam:
Spillway:

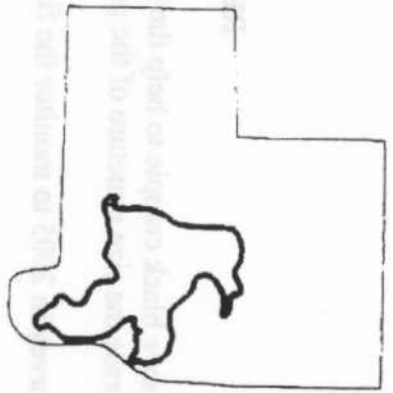


62

Planimetered Acreage By Strata

Acres greater than 2 feet:	55
Acres greater than 4 feet:	47
Acres greater than 6 feet:	37
Acres greater than 8 feet:	27
Acres greater than 10 feet:	17
Acres greater than 12 feet:	8
Acres greater than 14 feet:	5
Acres greater than 16 feet:	3

Public Land Reference Ma



SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Fairfax Lake **County:** Gregory
Legal Description: T95N-R68W-Sec. 15
Location from nearest town: 2 miles north, 1 mile east of Fairfax

Date of present survey: July 10-11, 2002 (netting)
Date of last survey: July 26-28, 1999 (netting)
Most recent lake management plan: F-21-R-32 (January 1, 2000 to December 31, 2004)
Management classification: Warmwater Semi-Permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Northern Pike
Bluegill	Yellow Perch
Black Crappie	Black Bullhead

PHYSICAL DATA

Surface Area: 21 acres **Watershed:** 1,470 acres
Maximum Depth: 22 feet **Mean Depth:** 12 feet
Lake elevation at time of survey (field observations): 2 feet low
Contour map: No **Date:** NA

Ownership of lake and adjacent lakeshore properties:

The South Dakota Game, Fish and Parks own Fairfax Lake and 42.3 acres of land adjacent to it with the Wildlife Division managing the fishery.

Watershed condition with percentages of land use types:

Fairfax Lake's watershed is 73% cropland, 25% pastureland and hayland, and 2% is trees, residences and roads.

Fishing access:

The entire lake and shoreline is public and open to fishing. There is a boat ramp on the northwest side. Shore fishing may be limited by submergent vegetation during the summer months.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The dam grade and boat ramp are both in good condition. The spillway has suffered significant erosion in the approach and downstream areas, this has allowed water to begin to flow under the structure. This damage to the spillway structure should be addressed soon or this valuable fishery could be lost.

Field observations of aquatic vegetation condition:

Dense coontail and pondweed are present along the shoreline with none present in the central portion of the lake.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident during the present survey. Water clarity is poor with a secchi disc reading of 2.5 feet. Other water quality characteristics were measured in the field on July 10, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Fairfax Lake, Gregory County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	78	10.09	22	203	573	8.0	2.5
A	25	71	0.36	29	248	591	7.5	

BIOLOGICAL DATA

Methods:

Fairfax Lake was sampled on July 10-11, 2002, with six overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and'/4 in. knotted mesh. No experimental gill nets or electrofishing was done during this survey. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Black bullheads dominated the catch for the trap nets at 83.8%. Other species sampled were bluegill (8.3%), yellow perch (7.3%), black crappie (0.5%), and northern pike (0.1%).

Table 2. Total catch of six, overnight 3/4-inch frame nets at Fairfax Lake, Gregory County, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	1454	83.8	242.3	± 83.8	1.5	80	58	85
Bluegill	144	8.3	24.0	± 8.6	26.8	51	0	93
Yellow Perch	127	7.3	21.2	± 5.9	4.2	54	6	75
Black Crappie**	9	0.5	1.5	± 1.4	124.0	75	0	103
Northern Pike	1	0.1	0.2	± 0.2	0.6	--	--	89

* Six years (1980, 1983, 1986, 1989, 1996, & 1999)
* * Two years for CPUE (1996 & 1999)

Black Crappie

Black crappies mysteriously become the dominant species in Fairfax Lake in the 1996 survey. They had CPUE's of 130.1 in 1996 and 117.9 in 1999 (Table 5). Now their numbers have dropped to a CPUE of only 1.5. The size structure has never been all that good though. Their condition has been great with a Wr value of 103-113 over the last three surveys. It is not sure where they came from or where they went. It is possible that they were washed out with the high water levels in 2001.

Blue ill

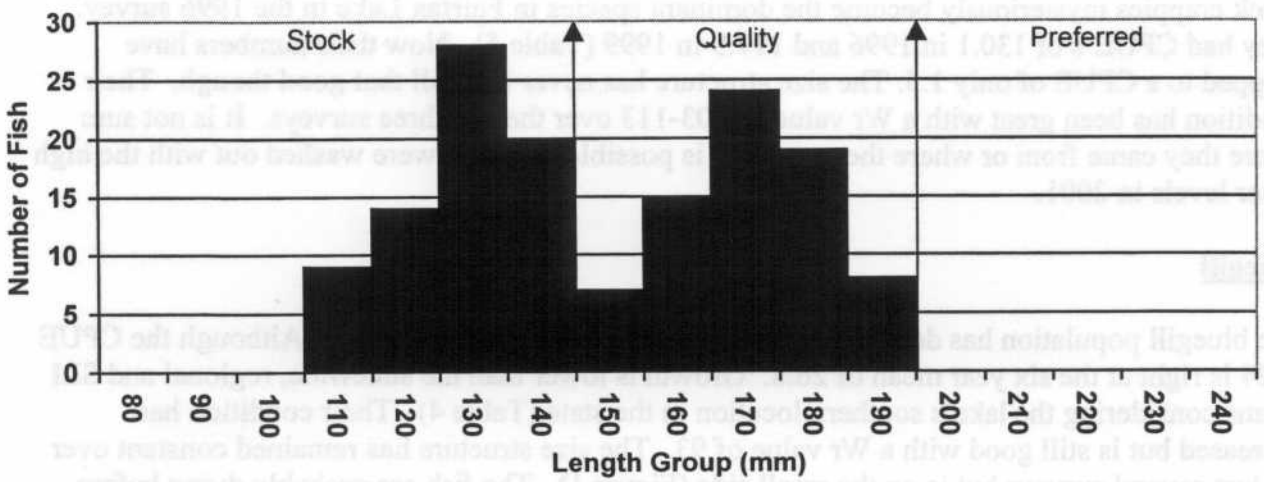
The bluegill population has declined again this survey compared to the last. Although the CPUE of 24 is right at the six year mean of 26.8. Growth is lower than the statewide, regional and SLI means considering the lake's southern location in the state (Table 4). Their condition has decreased but is still good with a Wr value of 93. The size structure has remained constant over the last several surveys but is on the small side (Figure 1). The fish are probably dying before they reach the desirable size for anglers. The bluegills appear to be annually producing a natural year class, which is maintaining the population. Something needs to be done to help increase the size structure/growth rates of the bluegills for the fishing population of the area.

Table 3. Average back-calculated lengths (mm) for each age class of bluegill sampled in Fairfax Lake, Gregory County, 2002.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
2000	2	58	47	109				
1999	3	9	52	90	133			
1998	4	45	46	89	130	162		
1997	5	19	46	85	113	143	169	
1996	6	4	39	78	118	134	151	185
All Classes		**135**	**46**	**90**	**124**	**146**	**160**	**185**
Statewide Mean			55	103	141	166	180	
Region II Mean			52	97	134	164	180	
SLI* Mean			53	101	138	163	180	

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for bluegill sampled in Fairfax Lake, Gregory County, 2002.



Yellow Perch

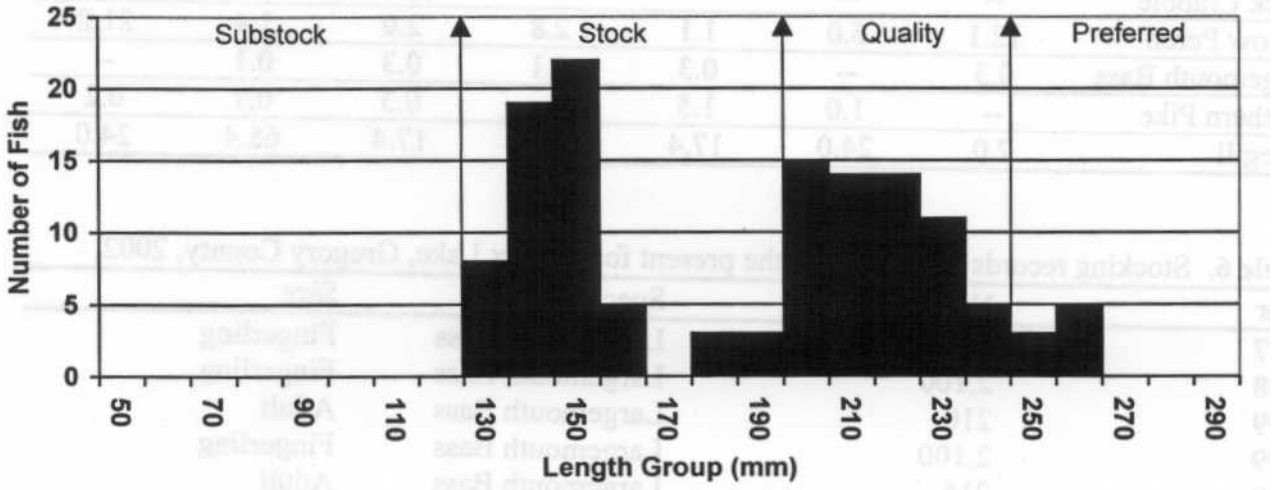
The yellow perch population has jumped to an all time CPUE high of 21.2. The size structure is also in good shape (Figure 2) with a PSD of 54 and an RSD-P of 6. Growth is right at the statewide, regional and SLI mean (Table 5). Their condition is low though with a Wr value of 75. This yellow perch population should be a good supplement to the fishing community of the area.

Table 4. Average back-calculated lengths (mm) for each age class of yellow perch sampled in Fairfax Lake, Gregory County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
2001	1	53	136				
2000	2	50	96	204			
1999	3	20	97	148	232		
1997	5	4	97	124	157	197	232
All Classes		**127**	**107**	**159**	**194**	**197**	**232**
Statewide Mean			86	145	190	220	242
Region II Mean			91	152	196	219	242
SLI* Mean			87	142	185	205	219

* Small Lakes and Impoundments

Figure 2. Length frequency histogram for yellow perch sampled in Fairfax Lake, Gregory County, 2002.



Black Bullhead

The black bullhead population has boomed from a CPUE of 0.7 in 1999 and a six year mean of 1.5 to 242.3 this survey. Their size structure (Figure 3) is in good shape with a PSD of 80 and an RSD-P of 58. Their condition is fine with a Wr value of 85. This big jump in the bullhead population is a huge surprise. It is not known for sure where they came from. The increase may be a result of recruitment from the existing population. Very little past information is known about the largemouth bass population, but a decrease in predator numbers due to a fishkill could have resulted in the rapid increase of bullhead density, especially with the size structure that is exhibited.

Figure 3. Length frequency histogram for black bullhead sampled in Fairfax Lake, Gregory County, 2002.

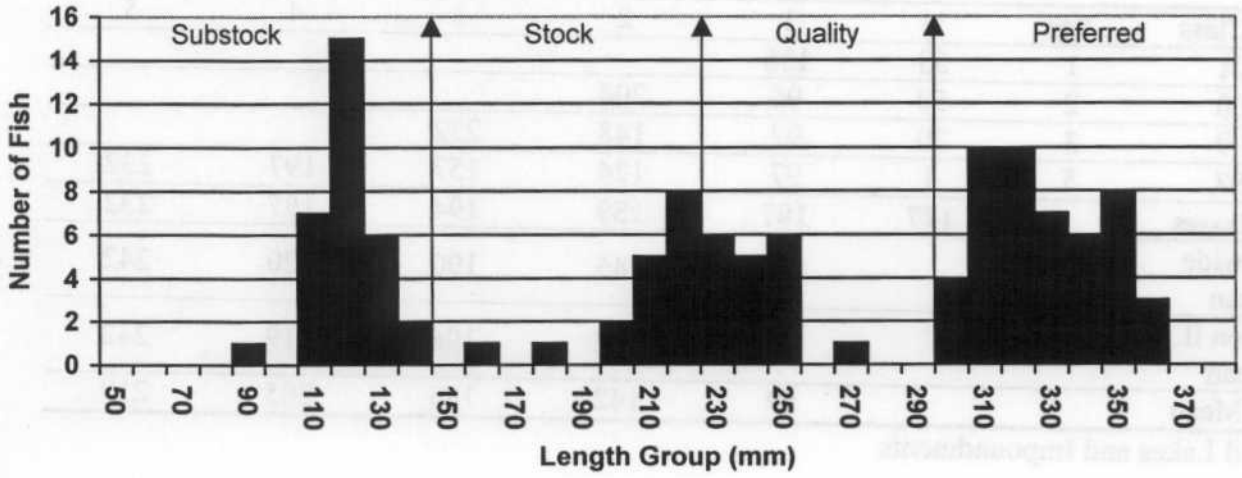


Table 5. Trap net CPUE for all species sampled in Fairfax Lake from 1980 to the present.

Species	1980	1983	1986	1989	1996	1999	2002
Black Bullhead	3.4	2.0	0.4	1.3	1.3	0.7	242.3
Black Crappie	--	--	--	--	130.1	117.9	1.5
Yellow Perch	12.1	6.0	1.1	2.8	2.0	1.4	21.2
Largemouth Bass	0.3	--	0.3	0.1	0.3	0.1	--
Northern Pike	--	1.0	1.5	--	0.3	0.7	0.2
Bluegill	7.0	24.0	17.4	29.4	17.4	65.4	24.0

Table 6. Stocking records from 1997 to the present for Fairfax Lake, Gregory County, 2002.

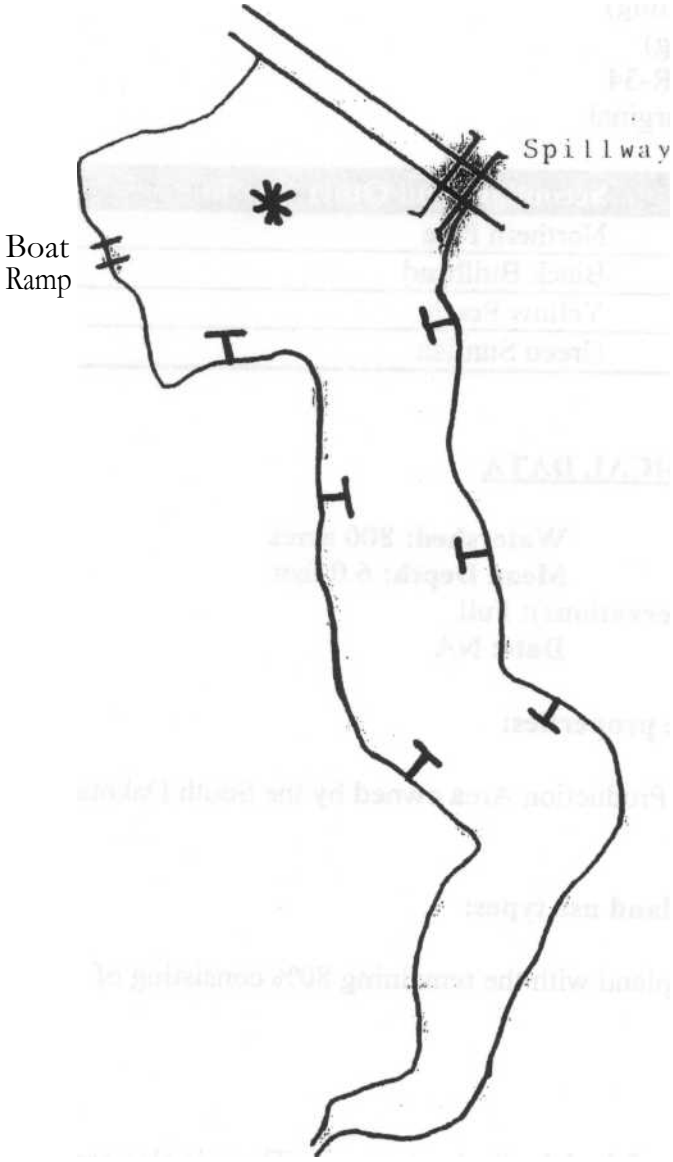
Year	Number	Species	Size
1997	2,100	Largemouth Bass	Fingerling
1998	2,100	Largemouth Bass	Fingerling
1999	210	Largemouth Bass	Adult
1999	2,100	Largemouth Bass	Fingerling
2000	216	Largemouth Bass	Adult
2001	2,100	Largemouth Bass	Fingerling

RECOMMENDATIONS

1. Electrofish next year to check the status of the largemouth bass population. No electrofishing records are available considering the amount of largemouth stocked over the last several years.

2. Resurvey in 2005 to monitor the fish species populations.

North



Fairfax Lake
Gregory County

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Herrick Lake **County:** Gregory
Legal Description: T96N-R71 W-Sec. 26
Location from nearest town: 1 mile southwest of Herrick

Date of present survey: July 8-10, 2002 (netting)
Date of last survey: July 26-28, 1999 (netting)
Most recent lake management plan: F-21-R-34
Management classification: Warmwater Marginal

Primary Game Species	Secondary and Other Species
Bluegill	Northern Pike
Largemouth Bass	Black Bullhead
Black Crappie	Yellow Perch
	Green Sunfish

PHYSICAL DATA

Surface Area: 12 acres **Watershed:** 800 acres
Maximum Depth: 14 feet **Mean Depth:** 6.0 feet
Lake elevation at time of survey (field observations): Full
Contour map: No **Date:** NA

Ownership of lake and adjacent lakeshore properties:

Herrick Lake is located on a 160 acre Game Production Area owned by the South Dakota Game, Fish and Parks who manages the fishery.

Watershed condition with percentages of land use types:

Land use in the watershed includes 20% cropland with the remaining 80% consisting of pastureland and native grasses.

Fishing access:

There is a boat ramp on the southeast corner of the lake for boat access. There is also access to the entire shoreline for shore fishing due the lake being on public land. Fishing in general is usually severely restricted by the amounts of submergent vegetation.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The dam and spillway are in fair condition. The dam is overgrown with brush and large trees. Beaver dams repeatedly obstruct the spillway. The boat ramp is in fair condition.

Field observations of aquatic vegetation condition:

Vegetation in Herrick Lake consists of mainly submergent plants primarily coontail and sago pondweed. The vegetation historically reaches nuisance levels by early summer.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident at the time of the survey. Water clarity is poor with a secchi disc reading of 2 feet. Other water quality characteristics were measured in the field on July 8, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Herrick Lake, Gregory County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	83	10.26	13.6	128	172	9.5	2
A	14	67	2.64	59.9	143	307	7.5	

BIOLOGICAL DATA

Methods:

Herrick Lake was sampled on July 8-10, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and'/4 in. knotted mesh. No experimental gill nets or electrofishing were done during this year's survey. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Black crappie and bluegill were the two dominant species found in the trap nets during this survey. They comprised 68.8 and 25.6% respectfully. Other species sampled were yellow perch (2.8%), black bullhead (2.1 %), largemouth bass (0.5%), northern pike (0.1 %), and green sunfish (0.1%).

Table 2. Total catch of ten, overnight ¾-inch frame nets at Herrick Lake, Gregory County, July 8-10, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Crappie	1096	68.8	109.6	± 36.2	15.9	52	7	87
Bluegill	408	25.6	40.8	± 9.5	47.3	66	0	88
Yellow Perch	44	2.8	4.4	± 1.8	1.2	70	7	87
Black Bullhead	34	2.1	3.4	± 1.4	0.7	100	88	82
Largemouth Bass	8	0.5	0.8	± 0.4	0.3	--	--	118
Northern Pike	2	0.1	0.2	± 0.2	0.6	--	--	97
Green Sunfish	1	0.1	0.1	± 0.1	0.7	--	--	102

* Seven years (1981, 1984, 1988, 1991, 1994, 1996, & 1999)

Black Crappie

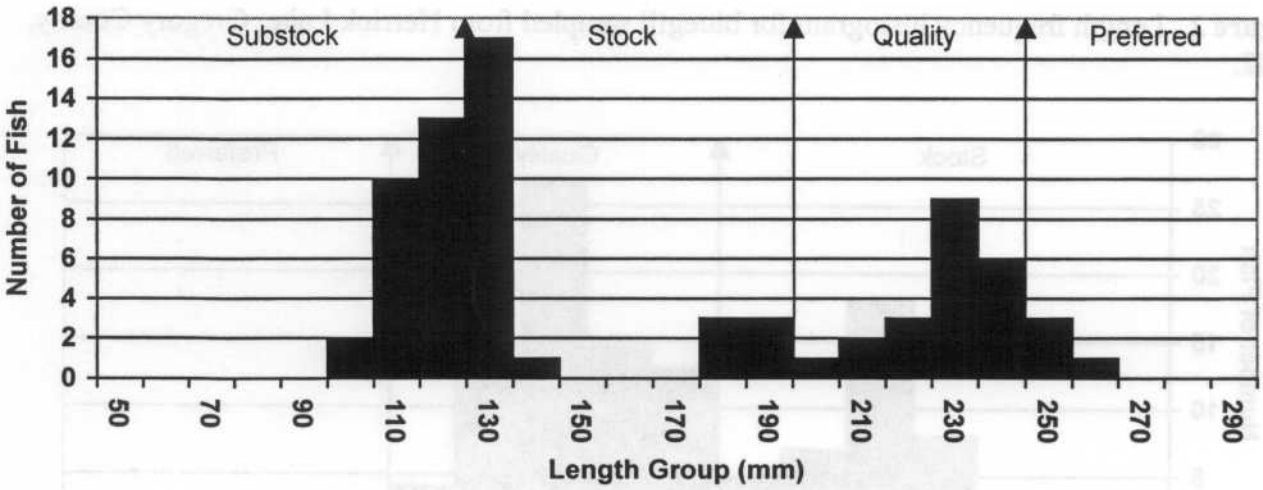
The black crappie population in Herrick Lake has increased by leaps and bounds over the last four surveys. The black crappies have reached their all time CPUE high of 109.6, which is well above the seven year mean 15.9. Their growth is good with their mean right around the statewide, regional and SLI means. The size structure (Figure 1) looks good, but actually consists of a majority of substock fish. The PSD is 52 with an RSD-P of 7, which has increased from the previous surveys PSD of 10, in spite of mainly consisting of substock fish. Their condition is good with a Wr value of 87. Natural recruitment is doing a very good job at keeping this population going and even increasing. It will have to be monitored so that the black crappie do not over populate and start to stunt. Actually some of these fish could be, and probably should be, removed so that the population does not stunt, slowing growth and decreasing condition.

Table 3. Average back-calculated lengths (mm) for each age class of black crappie sampled in Herrick Lake, Gregory County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
2001	1	31	102				
2000	2	7	85	176			
1999	3	9	96	142	214		
1998	4	5	79	144	170	208	
1997	5	15	94	137	163	183	236
All Classes		**67**	**91**	**150**	**182**	**195**	**236**
Statewide Mean			83	147	195	229	249
Region II Mean			75	132	177	209	235
SLI* Mean			78	134	180	209	226

- Small Lakes and Impoundments

Figure 1. Length frequency histogram for black crappie sampled from Herrick Lake, Gregory County, 2002.



Bluegill

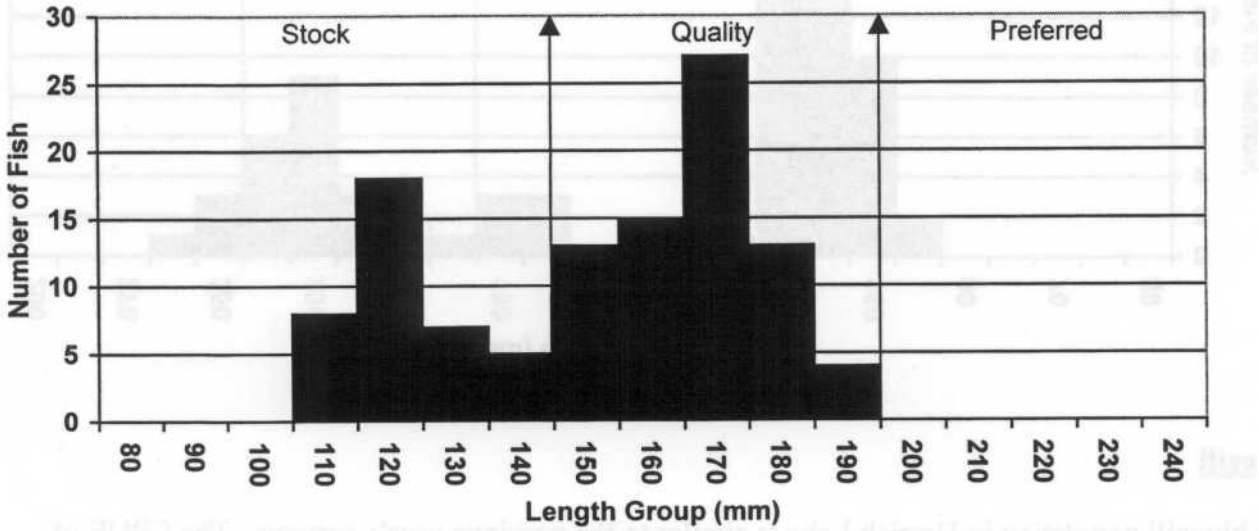
The bluegill population in Herrick Lake is similar to the previous year's surveys. The CPUE of 40.8 was down from the 63.6 in 1999 and the 47.3 seven year mean. Growth is slow (Table 4). Their condition is on the low side with a Wr value of 88. The bluegill population appears to be stunted. Their size structure (Figure 2) is not real good with most fish on the small side (PSD of 66 and an RSD-P of 0), although it has increased from the 1999 survey. A number of these bluegills should be removed from the population to increase their size for the fishing public.

Table 4. Average back-calculated lengths (mm) for each age class of bluegill sampled in Herrick Lake, Gregory County, 2002.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
2000	2	26	44	108				
1999	3	14	43	76	128			
1998	4	34	43	74	104	145		
1997	5	22	41	71	102	135	160	
1996	6	6	43	75	102	124	137	154
All Classes		**102**	**43**	**81**	**109**	**135**	**149**	**154**
Statewide Mean			55	103	141	166	180	
Region II Mean			52	97	134	164	180	
SLI* Mean			53	101	138	163	180	

* Small Lakes and Impoundments

Figure 2. Length frequency histogram for bluegill sampled from Herrick Lake, Gregory County, 2002.



Yellow Perch

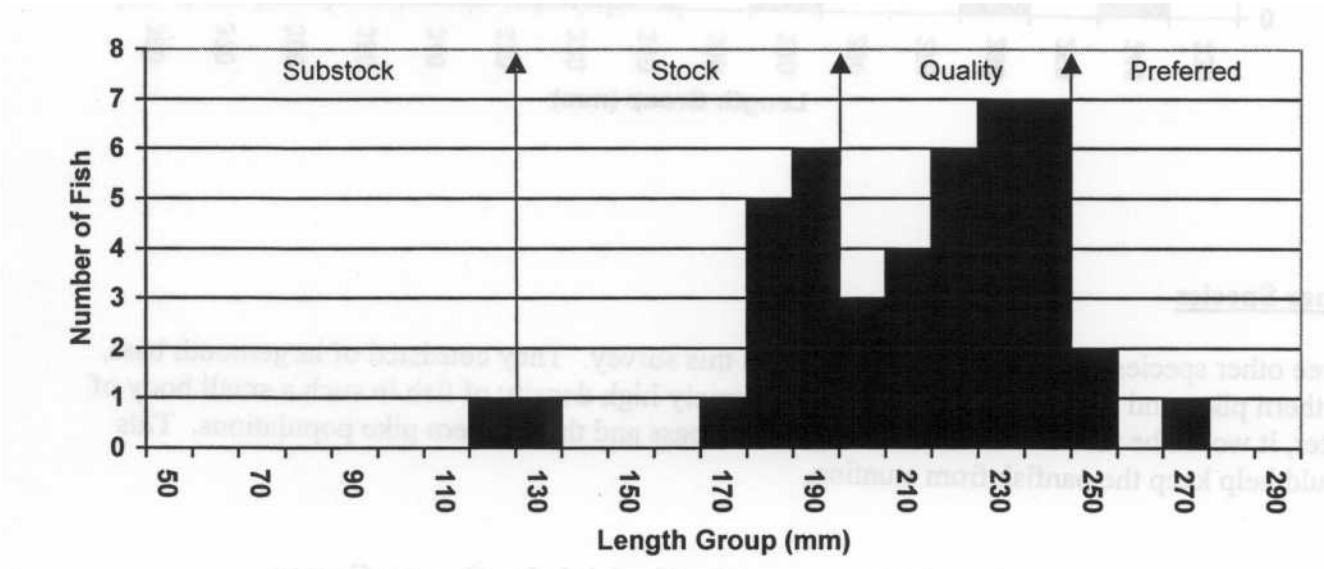
The yellow perch population found in Herrick Lake resembles the population seen in the 1996 survey. The numbers are up from the 1999 survey as well as the seven year mean (Table 2). Growth for the population is right around the SLI mean, but is lower than the statewide and regional means (Table 5). One thing that is limiting the perch population is the overabundance of other species in the lake, especially black crappie and bluegills. The size structure (Figure 3) is not the best with a PSD of 70 and an RSD-P of 7. It appears by looking at past survey reports and Table 5 that yellow perch only produce a year class every four to five years, which also goes along with the fact that there is a low density with a high PSD. Their condition is also a little low with a Wr value of 87, which is expected with the high density of fish and species in such a small lake.

Table 5. Average back-calculated lengths (mm) for each age class of yellow perch sampled in Herrick Lake, Gregory County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
2001	1	2	104				
2000	2	3	87	176			
1999	3	10	84	132	181		
1998	4	25	85	128	161	217	
1997	5	4	81	122	160	187	236
All Classes		**44**	**88**	**139**	**167**	**202**	**236**
Statewide Mean			86	145	190	220	242
Region II Mean			91	152	196	219	242
SLI* Mean			87	142	185	205	219

* Small Lakes and Impoundments

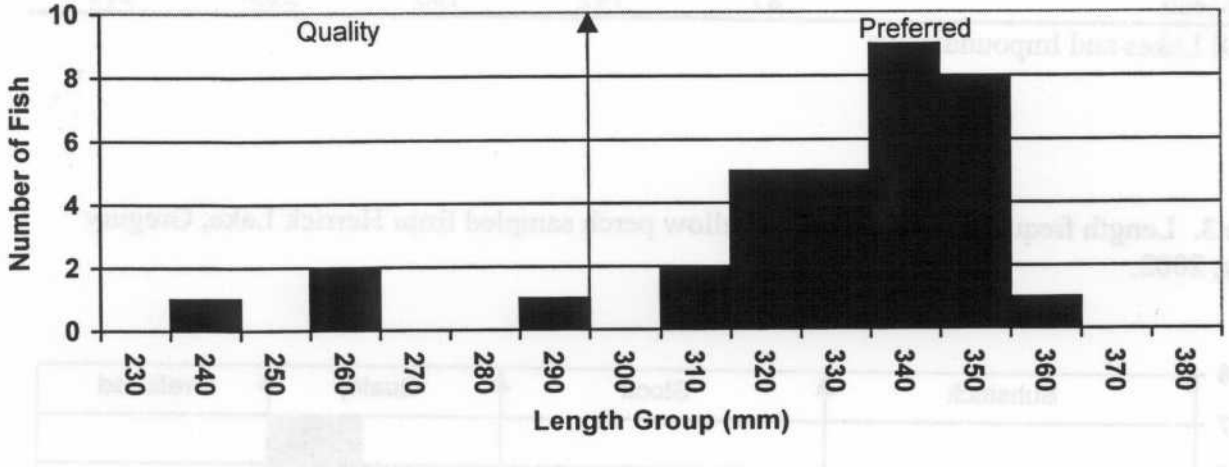
Figure 3. Length frequency histogram for yellow perch sampled from Herrick Lake, Gregory County, 2002.



Black Bullhead

The black bullhead population is probably the best in the lake for overall quality. They have a low density of quality fish (Figure 4). Figure 4 also shows their size structure that has a PSD of 100 and an RSD-P of 88. There are no new year classes coming up, but with the high density of other species in the lake it is probably hard for them to recruit new year classes. This is not such a bad thing for a black bullhead population, which can over populate in a hurry.

Figure 4. Length frequency histogram for black bullhead sampled from Herrick Lake, Gregory County, 2002.



Other Species

Three other species were marginally sampled in this survey. They consisted of largemouth bass, northern pike, and green sunfish. With the extremely high density of fish in such a small body of water, it would be nice to increase the largemouth bass and the northern pike populations. This would help keep the panfish from stunting.

Table 6. Stocking records from 1993 to present for Herrick Lake, Gregory County.

Year	Number	Species	Size
1993	1,200	Largemouth Bass	Medium Fingerling
1997	122	Northern Pike	Adult
2000	150	Largemouth Bass	Adult

RECOMMENDATIONS

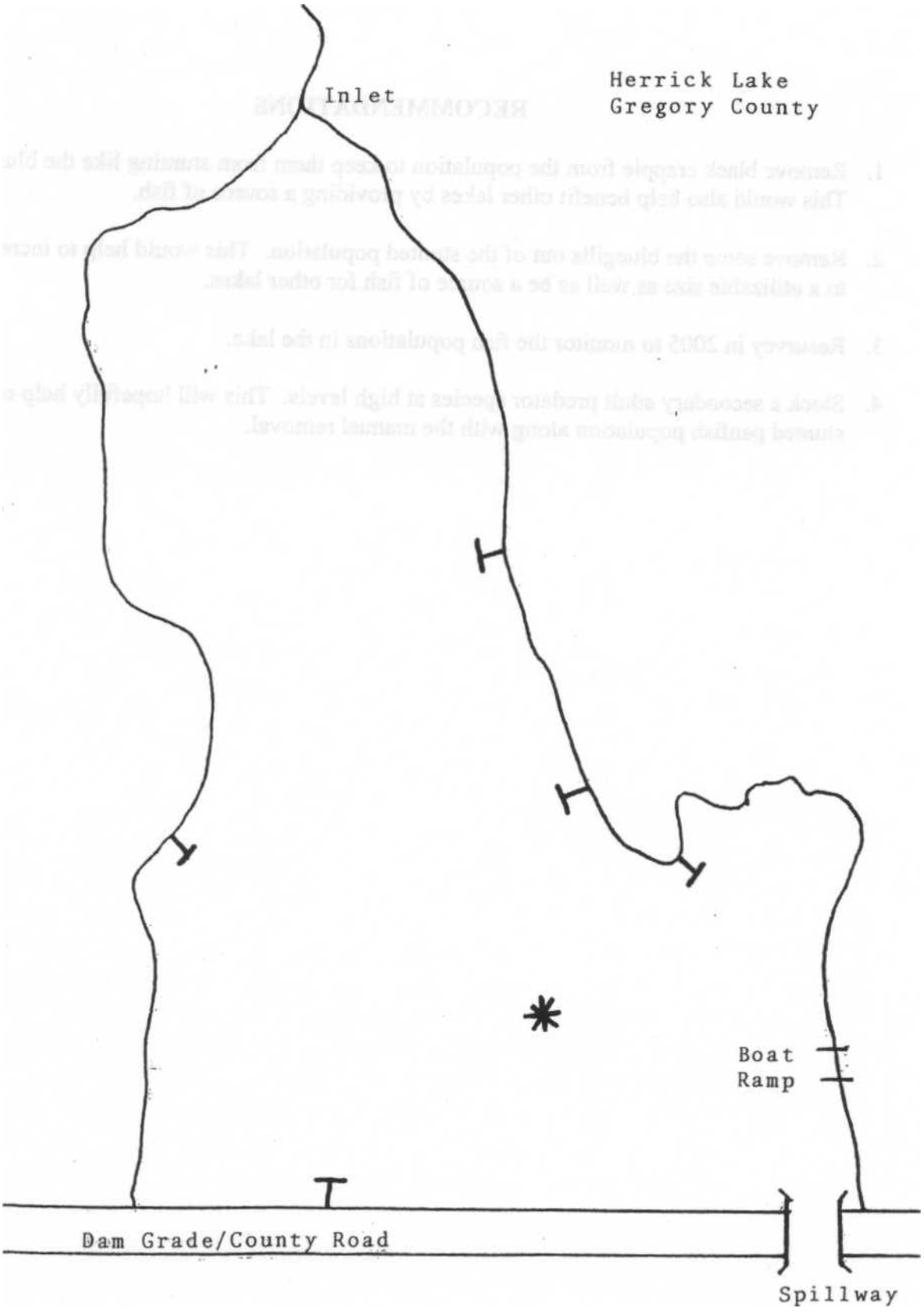
1. Remove black crappie from the population to keep them from stunting like the bluegills. This would also help benefit other lakes by providing a source of fish.

2. Remove some the bluegills out of the stunted population. This would help to increase growth to a utilizable size as well as be a source of fish for other lakes.

3. Resurvey in 2005 to monitor the fish populations in the lake.

4. Stock a secondary adult predator species at high levels. This will hopefully help control the stunted panfish population along with the manual removal.

North


Herrick Lake
Gregory County
Inlet
Boat
Ramp
Dam Grade/County Road
Spillway

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Jones Lake **County:** Hand
Legal Description: T112N-R68W-Sec. 25 & 36
Location from nearest town: 3 miles south and 1.5 miles east of Miller

Date of present survey: June 24-26, 2002 (netting); October 15, 2002 (electrofishing)
Date of last survey: June 11-13, 2001 (netting)
Most recent lake management plan: F-21-R-30
Management classification: Warmwater Semi-Permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Walleye
Black Bullhead	Black Crappie
Yellow Perch	Green Sunfish
Golden Shiner	

PHYSICAL DATA

Surface Area: 100 acres **Watershed:** 5,760 acres
Maximum Depth: 18 feet **Mean Depth:** 8.6 feet
Lake elevation at time of survey (field observations): 3 feet low
Contour map: Yes **Date:** 1973

Ownership of lake and adjacent lakeshore properties:

The South Dakota Department of Game, Fish and Parks own the southeast ¼ of the southeast ¼ of section 25 and the east ½ of the northeast ¼ of section 36. The remainder of the lake is privately owned with an access easement to the State of South Dakota for public access to a line twelve feet above the high water mark. The South Dakota Game, Fish and Parks manages the fishery.

Watershed condition with percentages of land use types:

The watershed for Jones Lake is 65% heavily grazed pastureland and 35% cropland consisting mostly of small grains. The immediate shoreline is 100% native grasses and wildlife area.

Fishing access:

The boat ramp is located on the northwest shore. There is also shore fishing access around the ramp area as well as around the entire shoreline, which may be limited somewhat by vegetation.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The dam grade, spillway and boat ramp is in good condition.

Field observations of aquatic vegetation condition:

Jones Lake is completely surrounded with submergent aquatic vegetation to a depth of 5 feet, with heavy amounts in the creek arms. There is little emergent vegetation at Jones Lake.

CHEMICAL DATA

Field observations of water quality and pollution problems:

The major pollution concern in Jones Lake is the effects of siltation, which has entered the system during periods of heavy rainfall. Water clarity is fair with a secchi disc reading of 3.5 ft. Other water quality characteristics were measured in the field on June 24, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Jones Lake, Hand County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	75	7.89	12.0	214	317	9.5	3.5
A	12	71	2.42	15.2	219	331	9.0	

BIOLOGICAL DATA

Methods:

Jones Lake was sampled on June 24-26, 2002, with nine overnight trap net sets. One trap net set did not fish. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and ⅜ in. knotted mesh. No experimental gill nets were set this survey. On October 15, 2002, Jones Lake was electrofished for 40 minutes (4-ten minute transects) with pulsed AC to sample the largemouth bass population. Conductivity was 450 ghmos with a water temperature of 50 degrees F. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Black bullheads dominated the catch in this year's survey with 79.7% of the total fish sampled. Yellow perch and black crappie were second and third with nearly equal rates (9.6% and 9.4% respectively). Other species sampled were largemouth bass (0.8%) and golden shiner (0.4%).

Table 2. Total catch of nine, overnight ³/4-inch frame nets at Jones Lake, Hand County, June 24-26,2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	380	79.7	42.2	±13.5	216.6	44	0	84
Yellow Perch	46	9.6	5.1	±3.1	5.2	100	43	75
Black Crappie	45	9.4	5.0	±3.8	2.4	100	100	103
Largemouth Bass	4	0.8	0.4	±0.5	0.2	--	--	99
Golden Shiner	2	0.4	0.2	±0.2	0.1	--	--	85

* Eleven years (1982-84, 1986-88, 1990, 1993, 1995, 1998, and 2001)
* * Severe winterkill during the winter of 2000/2001, but not total

Electrofishing Catch

A very good largemouth bass population was sampled with a catch of 145.5 bass per hour during fall electrofishing.

Table 3. Total catch from four, ten minute runs of fall nighttime electrofishing on Jones Lake, Hand County, Oct. 15, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Largemouth Bass	97	100	145.5	±59.8	--	63	37	109

* First time electrofished and a new population after winterkill of 2000/2001

Largemouth Bass

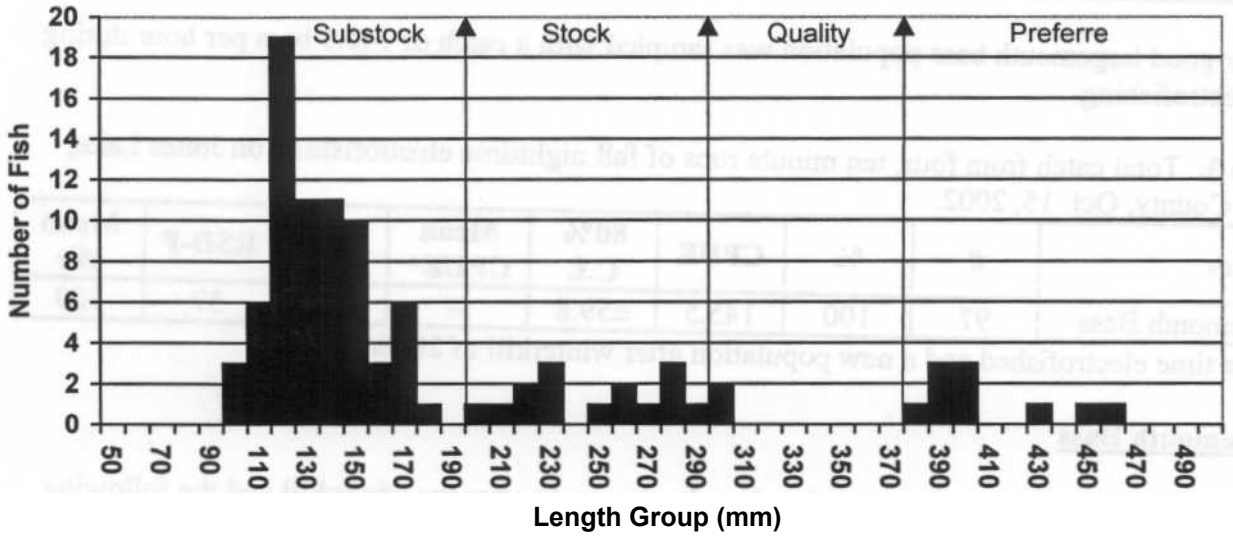
The largemouth bass population has developed very nicely after the winterkill and the following stockings. There were 8,400 fingerlings that did very well as indicated by the age data in Table 4. The 203 adults stocked also did well, producing several year classes of older fish. Hopefully these older fish will naturally produce year classes so not as many stockings will be needed. The stockings that were made have produced a very good size structure (Figure 1) with a PSD of 63 and an RSD-P of 37. The largemouth bass population will be needed to control the black bullhead population as well as the panfish.

Table 4. Average back-calculated lengths (mm) for each age class of largemouth bass sampled in Jones Lake, Hand County, 2002.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
2001	1	77	112					
2000	2	3	149	196				
1999	3	2	89	172	324			
1998	4	3	116	182	259	374		
1997	5	2	84	164	217	269	363	
1996	6	3	96	195	247	298	340	411
All Classes		**90**	**108**	**182**	**262**	**314**	**352**	**411**
Statewide Mean			96	182	250	305	342	
Region II Mean			105	183	246	296	328	
SLI* Mean			99	183	246	299	332	

* Small Lakes and Impoundments

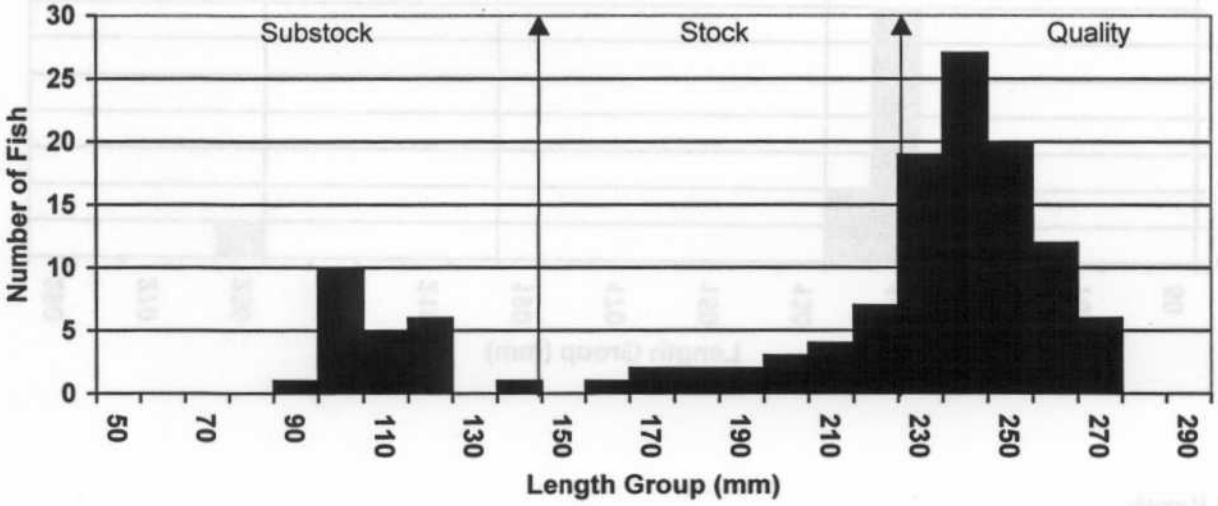
Figure 1. Length frequency histogram for largemouth bass sampled by electrofishing from Jones Lake, Hand County, 2002.



Black Bullhead

There remains a fairly large black bullhead population in Jones Lake. The catch rate of 42.2 is still lower than the eleven year mean of 216.6. The winterkill in 2000/2001 helped to lower this number. Their size structure (Figure 2) is on the small side with a PSD of 44. Their condition is low with a Wr value of 84. The large largemouth bass population should help to control this population from getting out of hand.

Figure 2. Length frequency histogram for black bullhead sampled from Jones Lake, Hand County, 2002.



Black Crappie

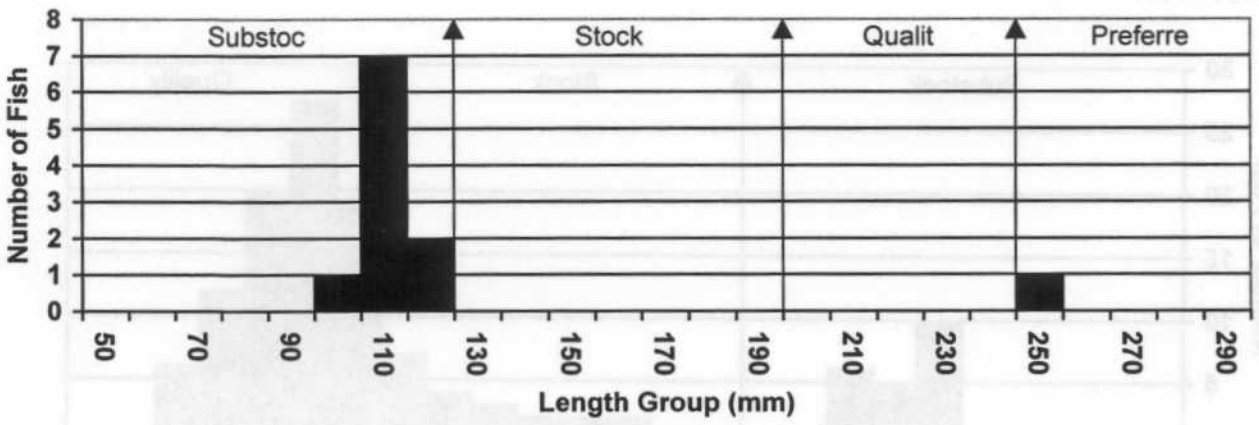
The black crappies found in this survey are a surprise. None have been stocked since the winterkill and none were seen in the post winterkill survey. They either come from somewhere in the watershed with the high runoff in the spring or possibly through bucket stocking. This seems odd, though, due to the vast majority of the fish in one age class. Their size structure (Figure 3) is small, but is expected for a new population. Growth is very good for the young fish sampled (Table 5). There could be a chance that a few adults made it through the winterkill and avoided the post winterkill survey and produced a year class. It is hard to know, but they have gotten a good start.

Table 5. Average back-calculated lengths (mm) for each age class of black crappie sampled in Jones Lake, Hand County, 2002.

			Back-calculated Age			
Year Class	Age	N	1	2	3	4
2001	1	25	106			
1999	3	1	108	150	242	
1998	4	1	77	143	170	250
All Classes		27	97	146	206	250
Statewide Mean			83	147	195	229
Region II Mean			75	132	177	209
SLI* Mean			78	134	180	209

* Small Lakes and Impoundments

Figure 3. Length frequency histogram for black crappie sampled in Jones Lake, Hand County, 2002.



Yellow Perch

The yellow perch stockings appear to have worked. There was 900 adult yellow perch stocked after the winterkill. It even appears that they produced a small year class (Table 6). Growth after the stocking was very good (Table 6). Their condition was low with a Wr value of 75. The stockings produced a very good starter size structure (Figure 4) with a PSD of 100 and an RSD-P of 43. The yellow perch should provide a good fishery right away. Hopefully, they will naturally produce year classes to keep the population going.

Table 6. Average back-calculated lengths (mm) for each age class of yellow perch sampled in Jones Lake, Hand County, 2002.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
2001	1	2	130					
2000	2	1	97	210				
1999	3	4	105	173	220			
1998	4	1	94	127	173	200		
1997	5	32	91	123	171	212	253	
1996	6	6	70	101	141	191	240	288
All Classes		**46**	**98**	**147**	**176**	**201**	**246**	**288**
Statewide Mean			86	145	190	220	242	
Region II Mean			91	152	196	219	242	
SLI* Mean			87	142	185	205	219	

* Small Lakes and Impoundments

Figure 4. Length frequency histogram for yellow perch sampled in Jones Lake, Hand County, 2002.

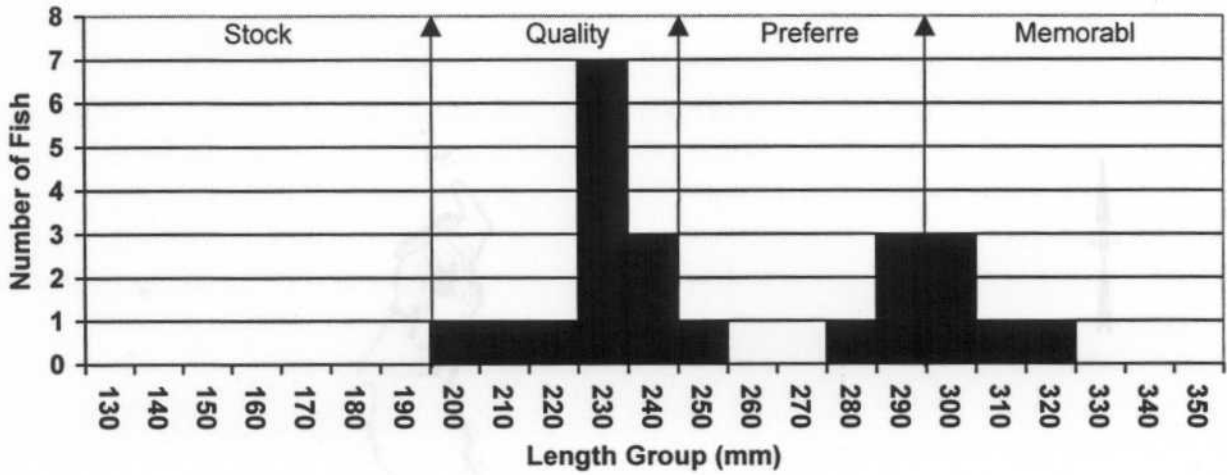
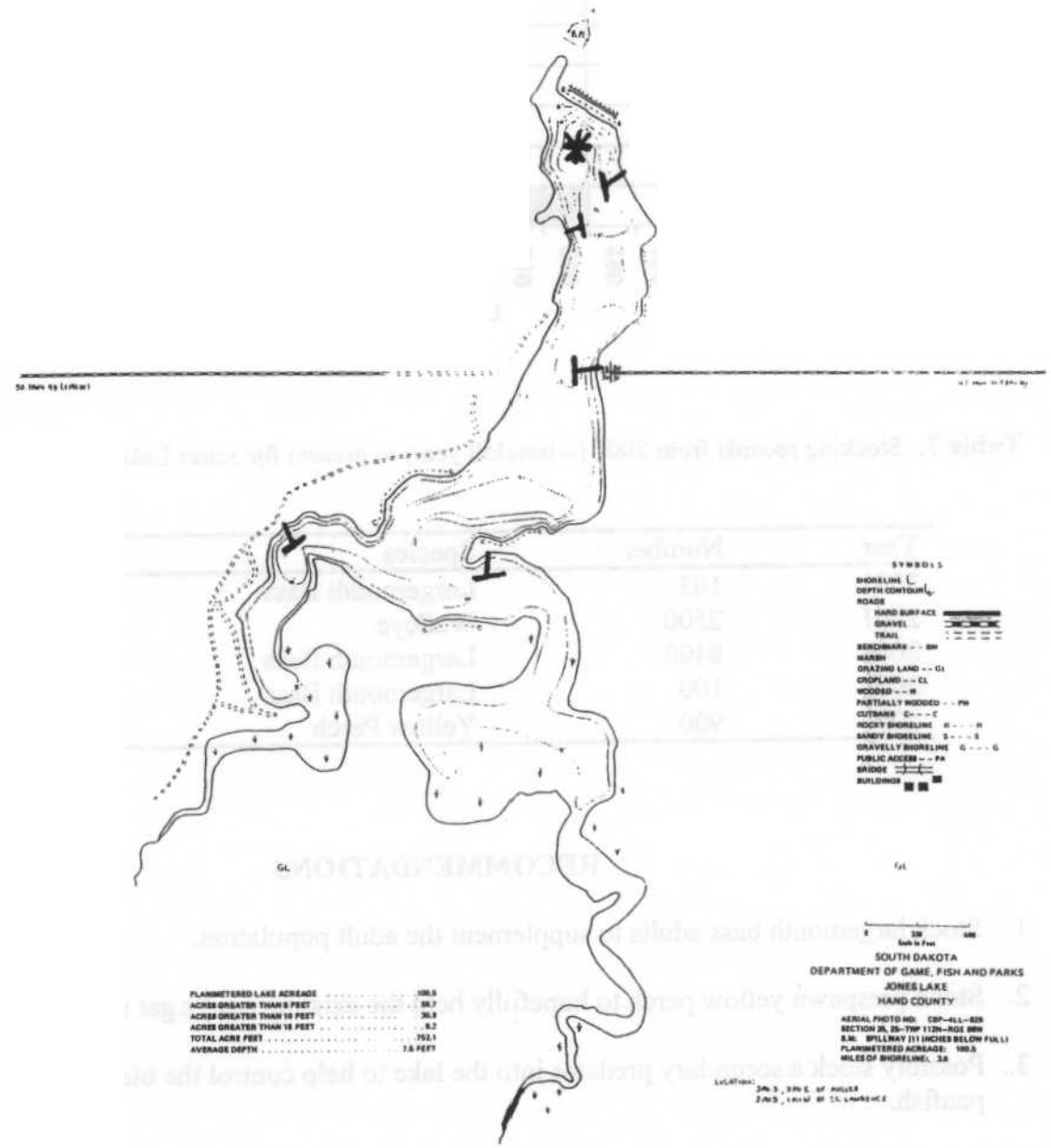


Table 7. Stocking records from 2001 (winterkill year) to present for Jones Lake, Hand County, 2002.

Year	Number	Species	Size
2001	103	Largemouth Bass	Adult
2001	2500	Walleye	Fingerling
2001	8400	Largemouth Bass	Fingerling
2001	100	Largemouth Bass	Adult
2001	900	Yellow Perch	Adult

RECOMMENDATIONS

1. Stock largemouth bass adults to supplement the adult population.
2. Stock prespawn yellow perch to hopefully help the existing adults get off a good year class.
3. Possibly stock a secondary predator into the lake to help control the black bullheads and panfish.
4. Resurvey in 2004 to monitor all fish populations.


SYMBOLS
SHORELINE
DEPTH CONTOUR
ROADS
HARD SURFACE
GRAVEL
TRAIL
BENCHMARK
MARSH
GRAZING LAND
CROPLAND
WOODED
PARTIALLY WOODED
CUTBANK
ROCKY SHORELINE
SANDY SHORELINE
GRAVELLY SHORELINE
PUBLIC ACCESS
BRIDGE
BUILDINGS
PLANIMETERED LAKE ACREAGE
ACRES GREATER THAN 5 FEET
ACRES GREATER THAN 10 FEET
ACRES GREATER THAN 15 FEET
TOTAL ACRE FEET
AVERAGE DEPTH
7.5 FEET
SOUTH DAKOTA
DEPARTMENT OF GAME, FISH AND PARKS
JONES LAKE
HAND COUNTY
AERIAL PHOTO NO:
SECTION 26, 25—TWP 113N—RGE 69W
S.W. SPILLWAY (11 INCHES BELOW FULL)
PLANIMETERED ACREAGE: 100.5
MILES OF SHORELINE: 3.6

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Rosehill **County:** Hand
Legal Description: T110-R66W-Sec. 21
Location from nearest town: 12 miles south, 1 mile east of Vayland

Date of present survey: June 24-26, 2002 (netting); Oct. 15, 2002 (electrofishing)
Date of last survey: July 10-12, 2000 (netting); Oct. 2, 2000 (electrofishing)
Most recent lake management plan: F-21-R-31 (January 1, 1999 to December 31, 2003)
Management classification: Warmwater Permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Yellow Perch
Black Crappie	Northern Pike
	Black Bullhead

PHYSICAL DATA

Surface Area: 35 acres **Watershed:** 3,840 acres
Maximum Depth: 30 feet **Mean Depth:** 13 feet
Lake elevation at time of survey (field observations): 1 foot low
Contour map: Yes **Date:** 1985

Ownership of lake and adjacent lakeshore properties:

Rosehill Dam is privately owned with access easements to the State of South Dakota to a line twelve feet above the high water mark, except for 19 acres on the northeast side, which is owned by South Dakota Department of Game, Fish and Parks. The South Dakota Department of Game, Fish and Parks manages the fishery.

Watershed condition with percentages of land use types:

Rosehill's watershed consists of 75% pastureland and 25% cropland. The lakeshore is mostly pasture, which is often over grazed.

Fishing access:

There is good shore fishing around the access point on the north side of the lake. There is also other shore fishing around the lake, which is limited by steeply sloped hills.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

During the fall of 1999, the water level at Rosehill Dam was lowered so that a new water control structure could be built. At the same time a new concrete boat ramp was built. Rosehill Dam also has a good picnic area. There is a good gravel road from the east to the boat ramp. The access road from the west is a dirt trail that becomes impassable during wet conditions.

Field observations of aquatic vegetation condition:

Submergent vegetation surrounds the entire lake with very dense amounts of algae in the upper end. There is little to no emergent vegetation on Rosehill Dam.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident during the 2002 survey. Water clarity is good with a secchi disc reading of 6.5 ft. Other water quality characteristics were measured in the field on June 24, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Rosehill Dam, Hand County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	80	9.15	20	208	354	9.0	6.5
A	21	71	2.78	41	213	--	8.0	

BIOLOGICAL DATA

Methods:

Rosehill Dam was sampled on June 24-26, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and ¾ in. knotted mesh. No experimental gill nets were set this survey. On October 15, 2002, Rosehill Dam was electrofished for 50 minutes (5-ten minute transects) with pulse AC to sample the largemouth bass population. Conductivity was 600 uhmos with a water temperature of 52 degrees F. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Black bullheads dominated the catch during this survey at 85.7%. Other species sampled were black crappie (10.5%), yellow perch (3.1%), northern pike (0.6%), and largemouth bass (0.1%). The populations are coming back after the severe winterkill during the 2000/2001 winter.

Table 2. Total catch of ten, overnight 3/4-inch frame nets at Rosehill Dam, Hand County, June 24-26, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	3301	85.7	330.1	± 114.1	0	78	0	89
Black Crappie	406	10.5	40.6	± 22.3	0	36	0	107
Yellow Perch	118	3.1	11.8	± 5.8	0	43	2	98
Northern Pike	23	0.6	2.3	± 1.3	0	0	0	87
Largemouth Bass	4	0.1	0.4	± 0.4	0	--	--	104

* Winterkill during the winter of 2000/2001

Electrofishing Catch

There was a small largemouth bass population sampled during this survey with only 14.4 fish per hour. The largemouth bass population has not taken yet after the winterkill during the 2000/2001 winter.

Table 3. Total catch from five, ten minute runs of fall nighttime electrofishing on Rosehill Dam, Hand County, October 15, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Largemouth Bass	12	100	14.4	±15.6	0	0	0	102

* Winterkill during the winter of 2000/2001

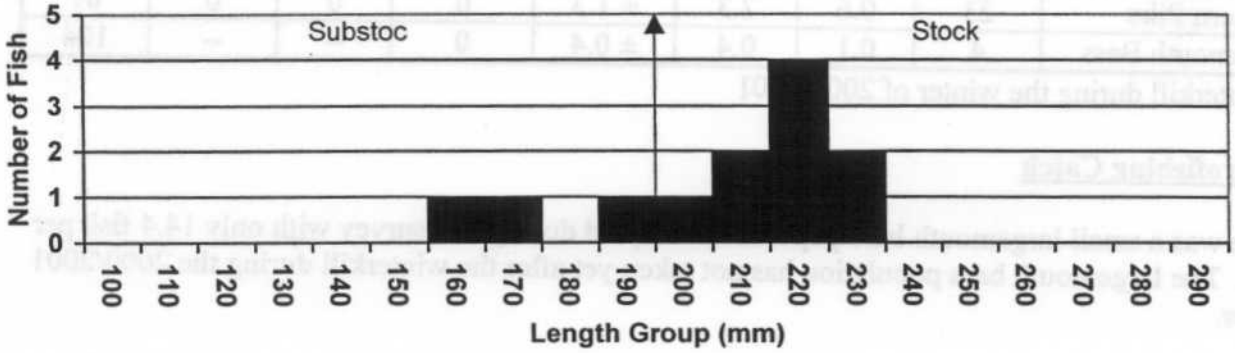
Largemouth Bass

The fall electrofishing for largemouth bass revealed that 3,400 fingerling and 150 adult largemouth bass stocked in 2001 after the winterkill were not successful. There was only 12 bass sampled in the fifty minutes of shocking. The fish sampled were from the fingerling stocking. Their growth was very good though (Table 4). More stockings will have to be made to increase this population for the predator base.

Table 4. Average back-calculated lengths (mm) for each age class of largemouth bass sampled by electrofishing from Rosehill Dam, Hand County, 2002.

			Back-calculated Age
Year Class	Age	N	1
2001	1	12	139
All Classes			**139**
Statewide Mean			96
Region II Mean			105
SLI* Mean			99

Figure 1. Length frequency histogram for largemouth bass sampled from Rosehill Dam, Hand County, 2002.



Black Crappie

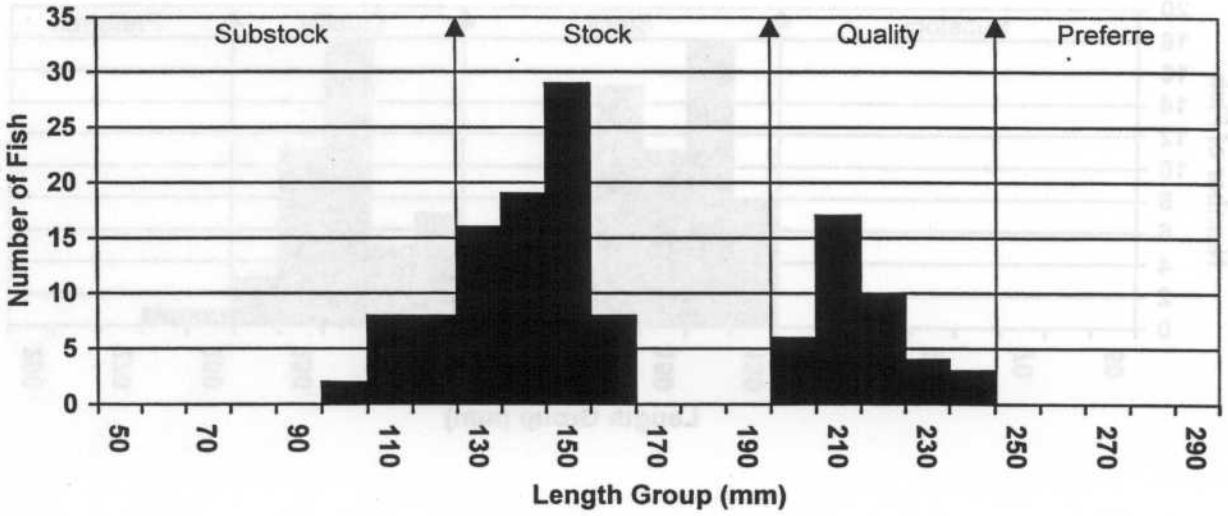
The black crappie stocking of 197 adults has done much better than the largemouth bass populations. The CPUE was 40.6, which is right around where the population was before the winterkill. The size structure (Figure 2) is still on the small side with a PSD of 36, but the majority of the fish were below stock length. Table 5 indicates a slow growing population, but this is not data from Rosehill fish, it is looking at the fish's growth while in their slow growing overpopulated lakes. Growth will have to be examined during the next survey to see results for Rosehill specific growth.

Table 5. Average back-calculated lengths (mm) for black crappie sampled from Rosehill Dam, Hand County, 2002.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
2001	1	37	134					
2000	2	1	83	177				
1999	3	29	74	122	199			
1998	4	9	91	141	173	225		
1996	6	1	69	119	161	192	209	241
All Classes		**77**	**90**	**140**	**178**	**209**	**209**	**241**
Statewide Mean			83	147	195	229	249	
Region II Mean			75	132	177	209	235	
SLI* Mean			78	134	180	209	226	

* Small Lakes and Impoundments

Figure 2. Length frequency histogram for black crappie sampled from Rosehill Dam, Hand County, 2002.



Yellow Perch

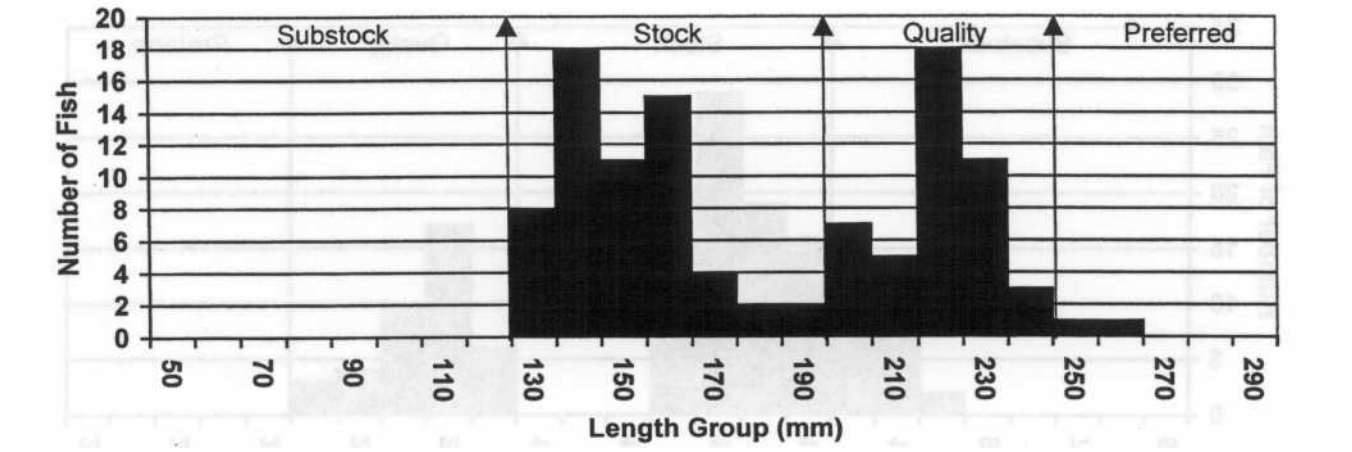
The biggest surprise in the survey was the abundance of yellow perch. No perch were stocked after the winterkill. They came from either somewhere in the watershed with the high spring runoff or through bucket stocking. After aging, four year classes were found with the majority being age 1 and 2 fish. Their overall growth is good with growth right at statewide, regional, and SLI means (Table 6). Figure 3 shows that the size structure is not to bad for a young population with a PSD of 43 and an RSD-P of 2. Their condition is good with a Wr value of 98.

Table 6. Average back-calculated lengths (mm) for each age class of yellow perch sampled from Rosehill Dam, Hand County, 2002.

			Back-calculated Age			
Year Class	Age	N	1	2	3	4
2001	1	55	131			
2000	2	46	99	197		
1999	3	3	95	156	217	
1998	4	2	87	118	160	245
All Classes		**106**	**103**	**157**	**188**	**245**
Statewide Mean			86	145	190	220
Region II Mean			91	152	196	219
SLI* Mean			87	142	185	205

* Small Lakes and Impoundments

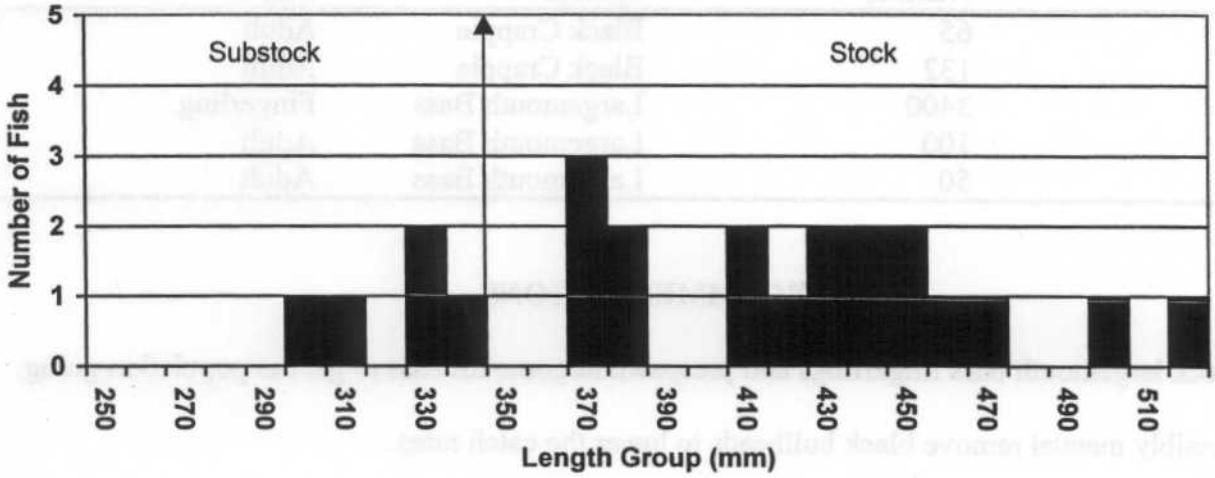
Figure 3. Length frequency histogram for yellow perch sampled from Rosehill Dam, Hand County, 2002.



Northern Pike

Another surprise, was the northern pike population found in Rosehill. Just like the yellow perch, the northern pike were not stocked, so entered the lake either through bucket stocking or through the runoff of the high spring water levels. Their size structure (Figure 4) is on the small side with a PSD and RSD-P of zero. This will make a presence of a good predator species to help control the bullheads and the panfish species once they get going good again.

Figure 4. Length frequency histogram for northern pike sampled from Rosehill Dam, Hand County, 2002.



Black Bullhead

Black bullheads were the only species seen during the post winterkill sampling. They have taken over as the dominant species with a catch rate of 330.1 fish per net, which is well above the management goal. Their size structure (Figure 5) is fair with a PSD of 78. Their numbers need to be reduced to benefit the whole system.

Figure 5. Length frequency histogram for black bullhead sampled from Rosehill Dam, Hand County, 2002.

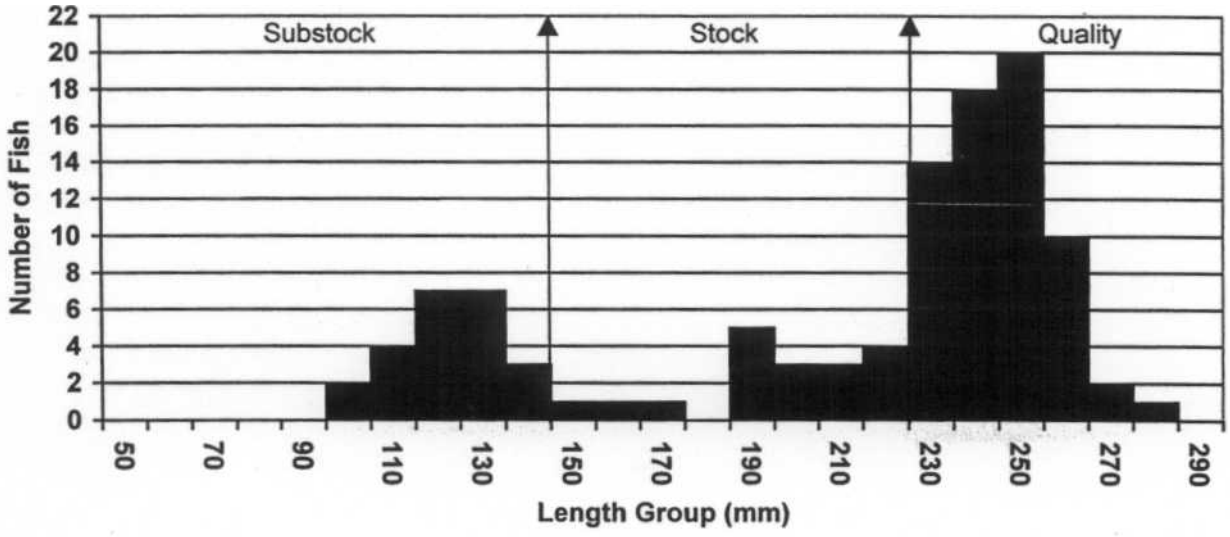
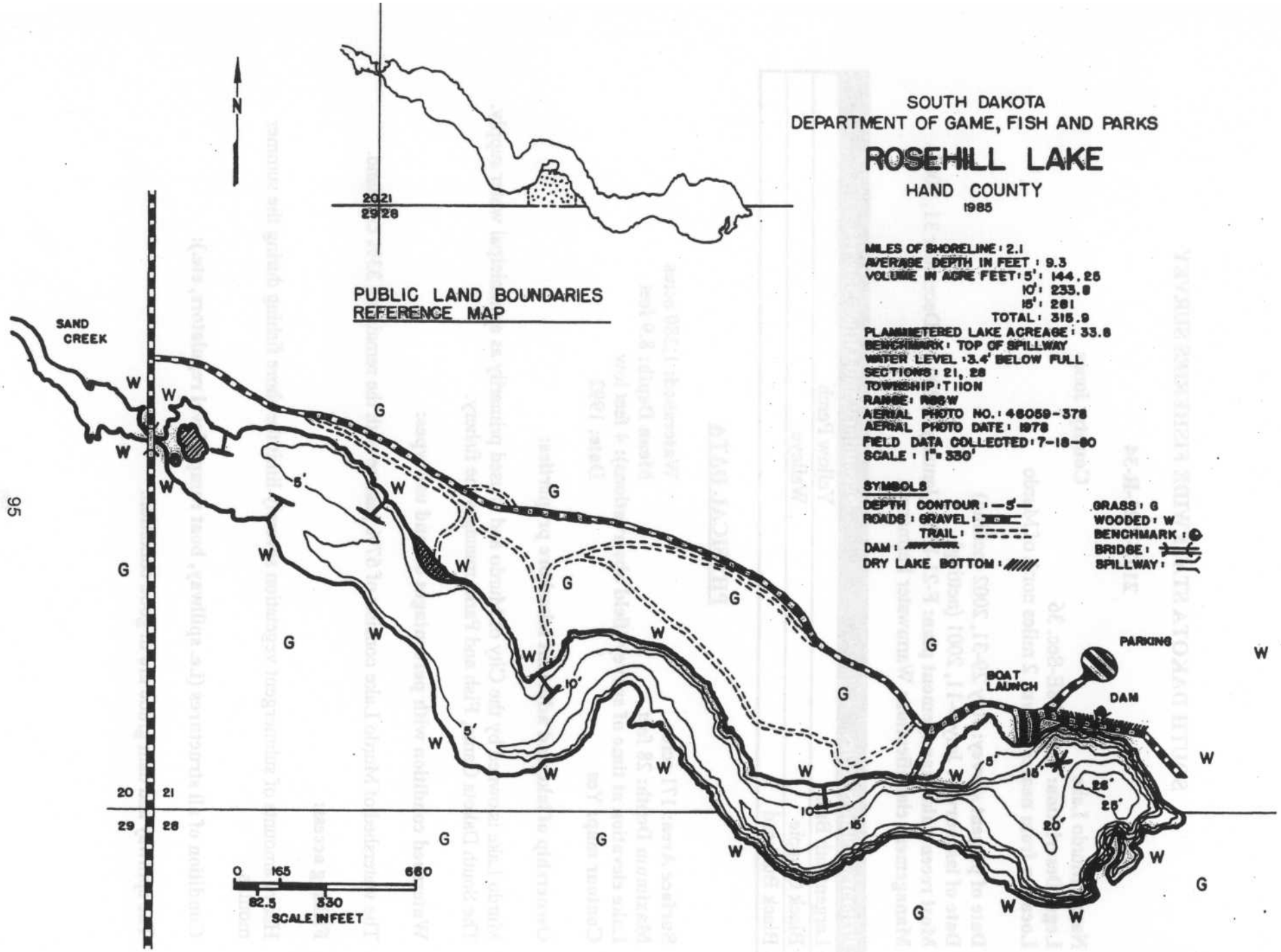


Table 7. Stocking records from the 2000/2001 winterkill to the present for Rosehill Dam, Hand County.

Year	Number	Species	Size
2001	65	Black Crappie	Adult
2001	132	Black Crappie	Adult
2001	3400	Largemouth Bass	Fingerling
2001	100	Largemouth Bass	Adult
2001	50	Largemouth Bass	Adult

RECOMMENDATIONS

1. Stock largemouth bass fingerlings and prespawn largemouth bass to get the population going.
2. Possibly manual remove black bullheads to lower the catch rates.
3. Resurvey again in 2004 to monitor the fish populations.


N
T
2021
2928
SOUTH DAKOTA
DEPARTMENT OF GAME, FISH AND PARKS
ROSEHILL LAKE
HAND COUNTY
1985
MILES OF SHORELINE: 2.1
AVERAGE DEPTH IN FEET: 9.3
VOLUME IN ACRE FEET: 5': 144.25
10': 233.8
15': 281
TOTAL: 315.9
PLANIMETERED LAKE ACREAGE: 33.8
BENCHMARK: TOP OF SPILLWAY
WATER LEVEL: 3.4' BELOW FULL
SECTIONS: 21, 28
TOWNSHIP: T110N
RANGE: R66W
AERIAL PHOTO NO.: 48059-378
AERIAL PHOTO DATE: 1978
FIELD DATA COLLECTED: 7-18-80
SCALE: 1"=330'
SYMBOLS
DEPTH CONTOUR: —5'—
ROADS: GRAVEL:
TRAIL:
DAM:
DRY LAKE BOTTOM:
GRASS: G
WOODED: W
BENCHMARK:
BRIDGE:
SPILLWAY:
PUBLIC LAND BOUNDARIES
REFERENCE MAP
SAND CREEK
PARKING
BOAT LAUNCH
DAM
20
21
29
28
0 165 660
82.5 330
SCALE IN FEET
REPRODUCTION BY PERMISSION OF THE G,F & P ONLY.

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Murdo Lake **County:** Jones
Legal Description: T1S-R28E-Sec. 36
Location from nearest town: 2 miles north of Murdo

Date of present survey: July 29-31, 2002 (netting)
Date of last survey: July 9-11, 2001 (netting)
Most recent lake management plan: F-21-R-33 (January 1, 2001 to December 31, 2005)
Management classification: Warmwater Permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Yellow Perch
Black Crappie	Walleye
Black Bullhead	

PHYSICAL DATA

Surface Area: 171 acres **Watershed:** 1,280 acres
Maximum Depth: 28 feet **Mean Depth:** 8.9 feet
Lake elevation at time of survey (field observations): 4 feet low
Contour map: Yes **Date:** 1992

Ownership of lake and adjacent lakeshore properties:

Murdo Lake is owned by the City of Murdo and is used primarily as a municipal water supply. The South Dakota Game, Fish and Parks manages the fishery.

Watershed condition with percentages of land use types:

The watershed of Murdo Lake consists of 67% pasture with the remaining 33% cropland.

Fishing access:

Heavy amounts of submergent vegetation severely limit the shore fishing during the summer months.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The spillway and dam grade are in good condition.

Field observations of aquatic vegetation condition:

Heavy amounts of submergent vegetation are found throughout the lake to seven feet deep and emergent vegetation is found along the shoreline.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were apparent at the time of the survey. The water clarity was fair to poor with a secchi disc reading of 3.4 feet. Other water quality characteristics were measured in the field on July 29, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Murdo Lake, Jones County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	73	7.77	36.8	141	1133	9.0	3.4
A	27	73	4.35	46.2	202	1118	8.0	

BIOLOGICAL DATA

Methods:

Murdo Lake was sampled on July 29-31, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and ¾ in. knotted mesh. No experimental gill nets were set this survey. Electrofishing was planned, but not conducted due to low water levels.

Results and Discussion:

Trap Net Catch

Black bullheads were by far the most dominant species in the 2002 survey at 90.5% of the total catch. Other species sampled were black crappie, golden shiner, and largemouth bass.

Table 2. Total catch of ten, overnight 3/4-inch frame nets at Murdo Lake, Jones County, July 29-31,2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	334	90.5	33.4	± 6.2	12.5	100	47	91
Black Crappie	27	7.3	2.7	± 1.0	8.1	100	100	96
Golden Shiner	6	1.6	0.6	± 0.4	0.9	--	--	--
Largemouth Bass	2	0.5	0.2	± 0.2	0.1	--	--	92

* Four years (1987, 1994, 1998, & 2001)

Black Crappie

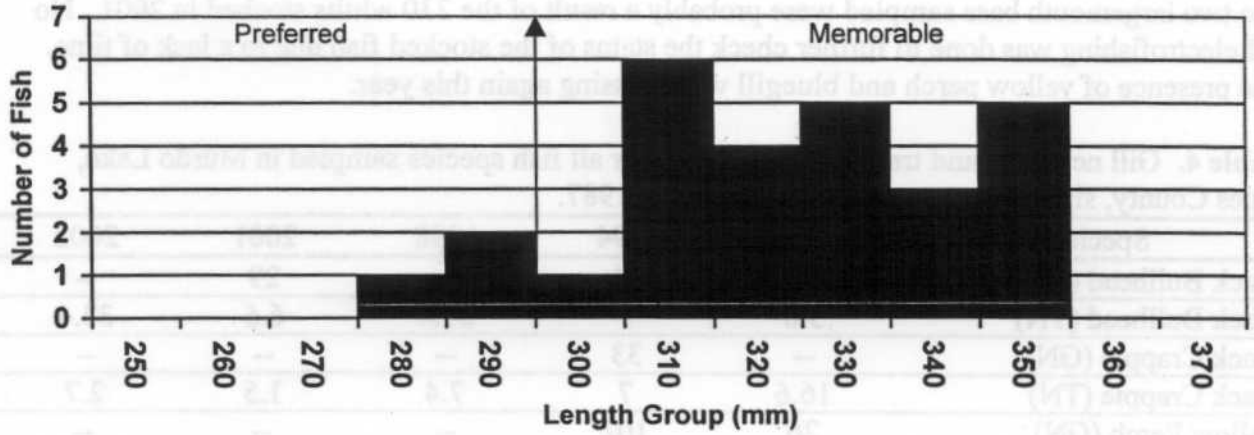
The black crappie population has made a slight increase from the last survey. This years CPUE was 2.7, which is still below the four year mean of 8.1 but is above the previous survey's 1.5 (Table 2 & 4). The size structure (Figure 1) is good with a PSD and RSD-P of 100. Overall growth for black crappies in Murdo Lake is slightly better than the statewide, regional and SLI means (Table 3). The condition of the black crappie is good with a Wr value of 96. The one thing missing in the population is the presence of new year classes coming on.

Table 3. Average back-calculated lengths (mm) for each age class of black crappie in Murdo Lake, Jones County, 2002.

			Back-calculated Age							
Year Class	Age	N	1	2	3	4	5	6	7	8
1998	4	2	90	184	249	281				
1997	5	6	90	157	224	259	298			
1996	6	10	95	167	216	255	293	318		
1995	7	7	92	134	185	226	261	293	321	
1994	8	2	102	153	183	213	247	287	316	335
All Classes		**27**	**94**	**159**	**211**	**247**	**275**	**299**	**319**	**335**
Statewide Mean			83	147	195	229	249			
Region II Mean			75	132	177	209	235			
SLI* Mean			78	134	180	209	226			

* Small Lakes and Impoundments

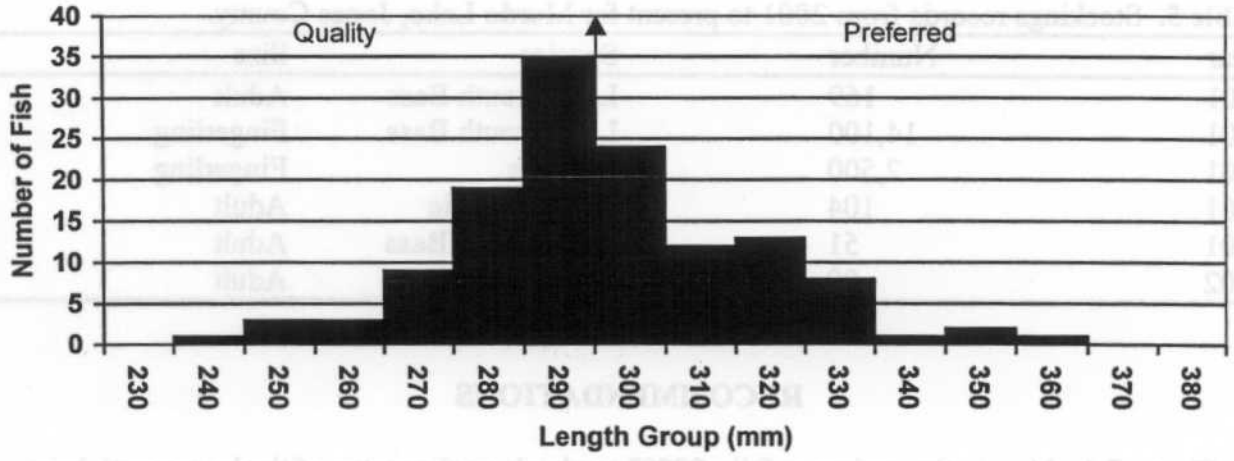
Figure 1. Length frequency histogram for black crappie sampled in Murdo Lake, Jones County, 2002.



Black Bullhead

Murdo Lake has a good black bullhead population. The numbers have boomed again this year with a CPUE of 33.4 compared to the 6.6 last year and the 12.5 four year mean CPUE (Table 2 & 5). This year's CPUE compares to the catches of the 1998 survey, except the size has increased. The current PSD is 100 and the RSD-P is 47, which is comparable to last years survey, where the 1998 survey's PSD was 74 and an RSD-P of 28. The condition of the black bullheads is good with a Wr value of 91. One thing missing from the previous surveys is the presence of fish under 230 mm (the quality size group).

Figure 2. Length frequency histogram for black bullhead sampled in Murdo Lake, Jones, County, 2002.



Other Species

Two other species were sampled in this survey. They were golden shiner and largemouth bass. The two largemouth bass sampled were probably a result of the 230 adults stocked in 2001. No fall electrofishing was done to further check the status of the stocked fish due to a lack of time. The presence of yellow perch and bluegill were missing again this year.

Table 4. Gill net (GN) and trap net (TN) CPUE for all fish species sampled in Murdo Lake, Jones County, since the start of regular surveys in 1987.

Species	1987	1994	1998	2001	2002
Black Bullhead (GN)	37	34	--	29	--
Black Bullhead (TN)	3.0	9	31.4	6.6	33.4
Black Crappie (GN)	--	33	--	--	--
Black Crappie (TN)	16.6	7	7.4	1.5	2.7
Yellow Perch (GN)	26	102	--	--	--
Yellow Perch (TN)	18.0	8	3.9	0.1	--
Largemouth Bass (GN)	--	--	--	--	--
Largemouth Bass (TN)	0.33	--	--	--	0.2
Northern Pike (GN)	--	2	--	--	--
Northern Pike (TN)	0.2	--	0.1	--	--
Bluegill (GN)	--	--	--	--	--
Bluegill (TN)	16.3	4	7.1	--	--
Green Sunfish (GN)	--	--	--	--	--
Green Sunfish (TN)	--	--	--	0.2	--
Golden Shiner (GN)	--	--	--	--	--
Golden Shiner (TN)	0.2	--	0.7	2.7	0.6
Rock Bass (GN)	--	--	--	--	--
Rock Bass (TN)	--	1.0	--	--	--

Table 5. Stockings records from 2001 to present for Murdo Lake, Jones County.

Year	Number	Species	Size
2001	169	Largemouth Bass	Adult
2001	14,100	Largemouth Bass	Fingerling
2001	2,500	Walleye	Fingerling
2001	104	Black Crappie	Adult
2001	51	Largemouth Bass	Adult
2002	80	Largemouth Bass	Adult

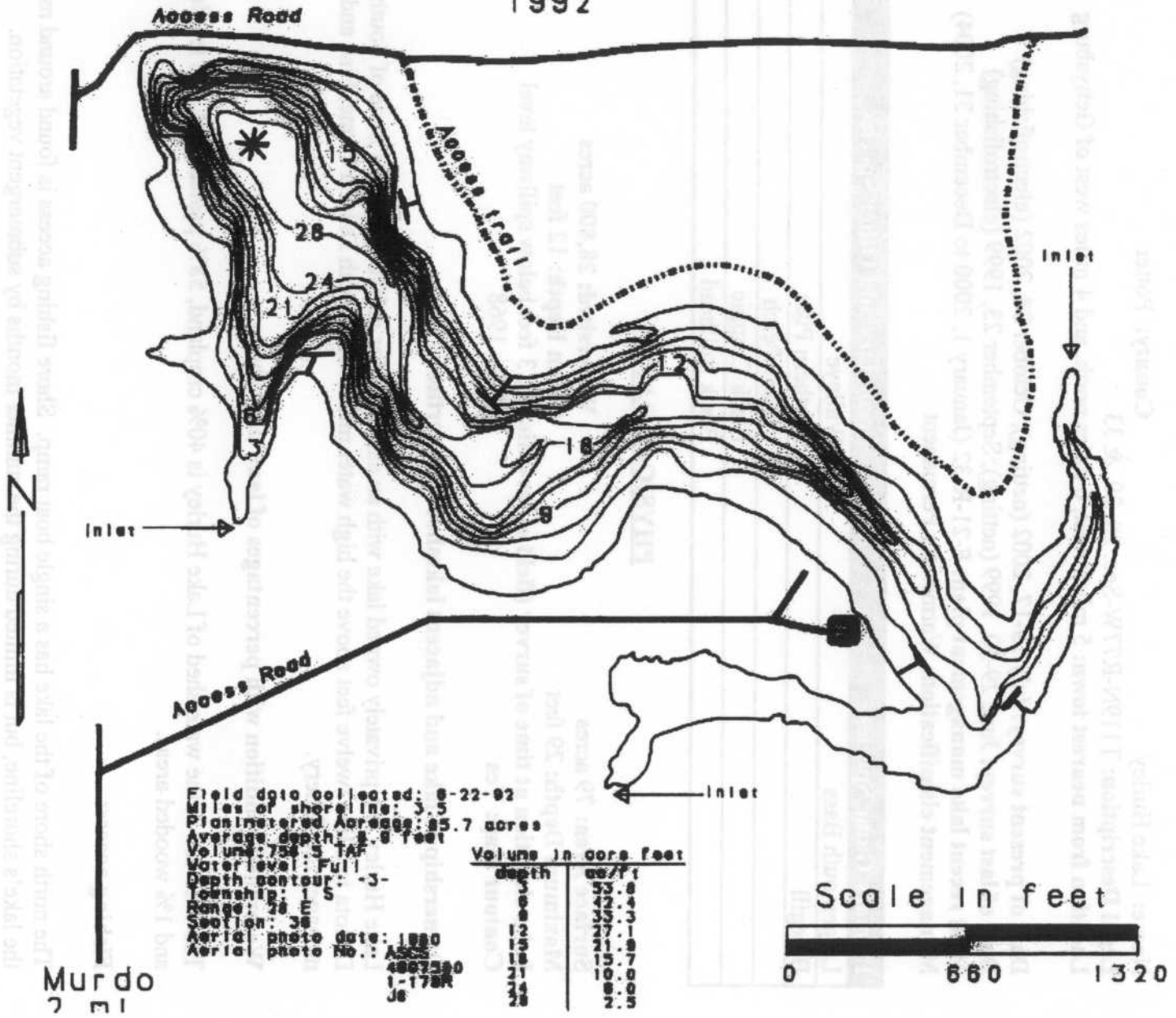
RECOMMENDATIONS

1. Electrofish either in the spring or fall of 2003 to check on the status of the largemouth bass population. If there is less than 40 fish/hour another stocking may need to be done to keep a predator species going in the system.

Murdo Lake

Jones County

1992



SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Lake Hurley **County:** Potter
Legal Description: T119N-R77W-Sec. 28, 29, & 33
Location from nearest town: 5 miles west, 6 miles north, and 4 miles west of Gettysburg

Date of present survey: July 15-17, 2002 (netting), October 28, 2002 (electrofishing)
Date of last survey: June 29-30, 1999 (netting), September 23, 1999 (electrofishing)
Most recent lake management plan: F-21-R-32 (January 1, 2000 to December 31, 2004)
Management classification: Warmwater Permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Walleye
Bluegill	Northern Pike
	Yellow Perch
	Black Crappie
	Black Bullhead

PHYSICAL DATA

Surface Area: 79 acres **Watershed:** 28,800 acres
Maximum Depth: 29 feet **Mean Depth:** 12 feet
Lake elevation at time of survey (field observations): 3 feet below spillway level
Contour map: Yes **Date:** 1968

Ownership of lake and adjacent lakeshore properties:

Lake Hurley is a privately owned lake with an easement for public use to the State of South Dakota to a line twelve feet above the high water mark. The South Dakota Game, Fish and Parks manages the fishery.

Watershed condition with percentages of land use types:

The land use in the watershed of Lake Hurley is 40% cropland, 58% pastureland, 1% feedlots, and 1 % wooded areas.

Fishing access:

The north shore of the lake has a single boat ramp. Shore fishing access is found around most of the lake's shoreline, but is limited during the summer months by submergent vegetation.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The access road is in good condition. The boat ramp needs a couple more planks for shallow water levels, but is in good condition otherwise. The dam grade and spillway are in good condition.

Field observations of aquatic vegetation condition:

Lake Hurley's shoreline is surrounded by emergent vegetation. Large amounts of submergent vegetation are found in the shallow areas as well as around the entire shoreline.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No siltation or pollution problems were evident during the 2002 survey. Water clarity was fair with a secchi disc reading of 3 ft. Other water quality characteristics were measured in the field on July 15, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Lake Hurley, Potter County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	72	7.8	13.2	221	375	10.0	3
A	21	71	9.1	38.0	112	364	9.5	

BIOLOGICAL DATA

Methods:

Lake Hurley was surveyed on July 15-17, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and ¾ in. knotted mesh. One overnight experimental gill net was also used. The gill net was 150 ft. x 6 ft. with 25 ft panels of ½, ¾, 1, 1-1/4, 1-1/2, and 2 inch monofilament mesh. Electrofishing was also attempted for 30 minutes (3-ten minute transects) on October 28, 2002, but due to too low water temperature, was not successful. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Gill net catch

Yellow perch was the dominant species (83.3%) caught in the gill net from Lake Hurley. Other species sampled were northern pike (8.3%), walleye (3.6%), bluegill (3.6%), and black crappie (1.2%).

Table 2. Total catch of one, 150 ft. experimental gill nets at Lake Hurley, Potter County, July 16,2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Yellow Perch	70	83.3	70	± 0.0	31.5	2	0	88
Northern Pike	7	8.3	7	± 0.0	3.3	100	57	82
Walleye	3	3.6	3	± 0.0	2.0	67	0	78
Bluegill	3	3.6	3	± 0.0	0.0	33	0	104
Black Crappie	1	1.2	1	± 0.0	1.7	--	--	100

* Six years (1980, 1982, 1985, 1993, 1996, and 1999)

Trap Net Catch

Black crappie and bluegill were the two dominant species sampled in the trap nets at 71.4% and 13.9% respectfully. Other species sampled were yellow perch, largemouth bass, northern pike, and walleye. The 17 largemouth bass is a large number, due to the largemouth's ability to avoid capture in trap nets.

Table 3. Total catch of ten, overnight 3/4-inch frame nets at Lake Hurley, Potter County, July 15-17,2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Crappie	287	71.4	28.7	± 13.0	14.9	42	15	84
Bluegill	56	13.9	5.6	± 1.3	13.9	87	32	100
Yellow Perch	23	5.7	2.3	± 1.0	2.4	5	0	91
Largemouth Bass	17	4.2	1.7	± 0.6	0.3	100	94	98
Northern Pike	13	3.2	1.3	± 0.3	1.3	--	--	80
Walleye	6	1.5	0.6	± 0.4	0.4	--	--	72

* Seven years (1980, 1982, 1985, 1988, 1993, 1996, and 1999)

Electrofishing Catch

Electrofishing was attempted on Lake Hurley on the night of October 28, 2002, for 30 minutes. It was not successful due to low water temperature. Very few fish of any kind were seen, except for northern pike. None were netted, but the population appeared to be doing very well.

Black Crappie

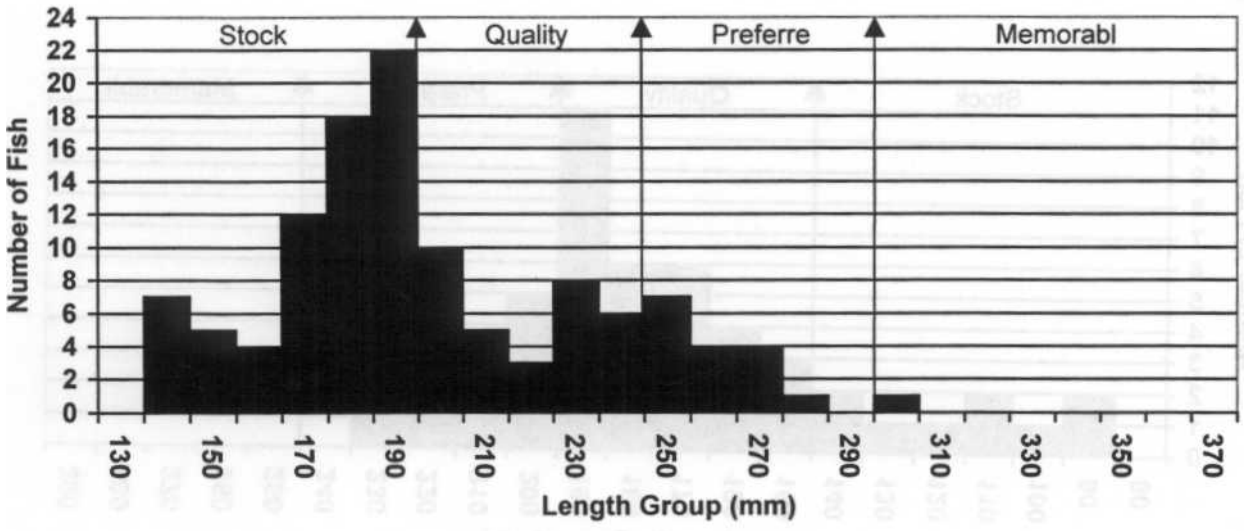
Black crappie remained the most abundant species in this year's survey. The CPUE was 28.7, which has significantly increased from the seven year mean of 14.9, but has decreased from the previous survey's 42.1. The size structure (Figure 1) has remained similar to the 1999 survey, with a PSD of 42 and an RSD-P of 15. Their condition remains fine with a Wr value of 84. The black crappie's growth is consistent with statewide, regional and SLI means.

Table 4. Average back-calculated lengths (mm) for each age class of black crappie sampled from Lake Hurley, Potter County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
2000	2	13	74	133			
1999	3	70	64	121	175		
1998	4	21	83	147	194	231	
1997	5	13	79	136	188	234	258
All Classes		**117**	**75**	**134**	**186**	**232**	**258**
Statewide Mean			83	147	195	229	249
Region II Mean			75	132	177	209	235
SLI* Mean			78	134	180	209	226

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for black crappie sampled from Lake Hurley, Potter County, 2002.



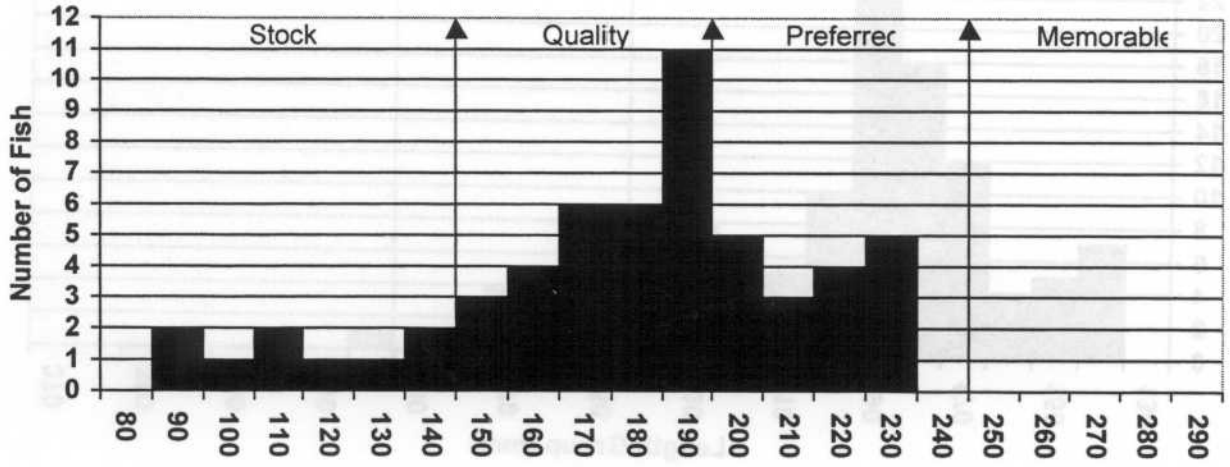
Bluegill

The bluegill population continues to decline. For the second survey in a row the CPUE has declined from 12.0 in 1996 to 7.1 in 1999 to 5.6 this survey. Their condition has again decreased from a Wr value of 131 in 1996 to 118 in 1999 to the present 100. Growth has remained slightly above statewide, regional and SLI means (Table 5). The size structure (Figure 2) has remained relatively consistent and good with a PSD of 87 and an RSD-P of 32.

Table 5. Average back-calculated lengths (mm) for each age class of bluegill sampled from Lake Hurley, Potter County, 2002.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
2000	2	6	43	95				
1999	3	31	45	92	146			
1998	4	15	44	91	151	191		
1997	5	3	49	102	168	202	221	
1996	6	2	36	82	151	175	202	221
All Classes		**57**	**43**	**92**	**154**	**189**	**212**	**221**
Statewide Mean			55	103	141	166	180	
Region II Mean			52	97	134	164	180	
SLI* Mean			53	101	138	163	180	

Figure 2. Length frequency histogram for bluegill sampled from Lake Hurley, Potter County, 2002.



Yellow Perch

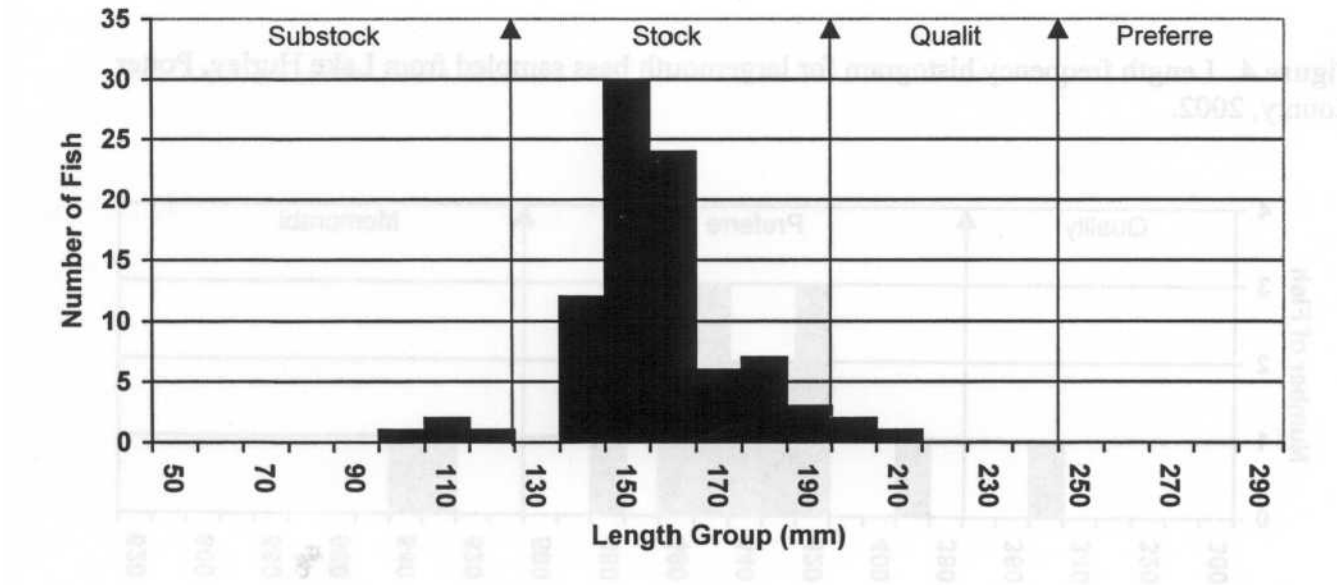
Lake Hurley has an abundant yellow perch population that is maintaining itself through natural recruitment. The gill net CPUE was well above the six year mean and the trap net CPUE was right at the seven year mean. The size structure is on the small side (Figure 3) with a PSD of 2 and an RSD-P of 0. The population does not appear to be stunted because growth rates are at the statewide, regional and SLI means. Their condition is fine with a Wr value of 88. Historically the yellow perch population has not been of great quality in Lake Hurley. The perch just may not get very big due to being the third panfish species in a crowded system with bluegills and black crappie thriving.

Table 6. Average back-calculated lengths (mm) for each age class of yellow perch sampled from Lake Hurley, Potter County, 2002.

			Back-calculated Age		
Year Class	Age	N	1	2	3
2000	2	11	78	141	
1999	3	2	83	146	185
All Classes		**13**	**81**	**144**	**185**
Statewide Mean			86	145	190
Region II Mean			91	152	196
SLI* Mean			87	142	185

* Small Lakes and Impoundments

Figure 3. Length frequency histogram for yellow perch sampled from Lake Hurley, Potter County, 2002.



Largemouth Bass

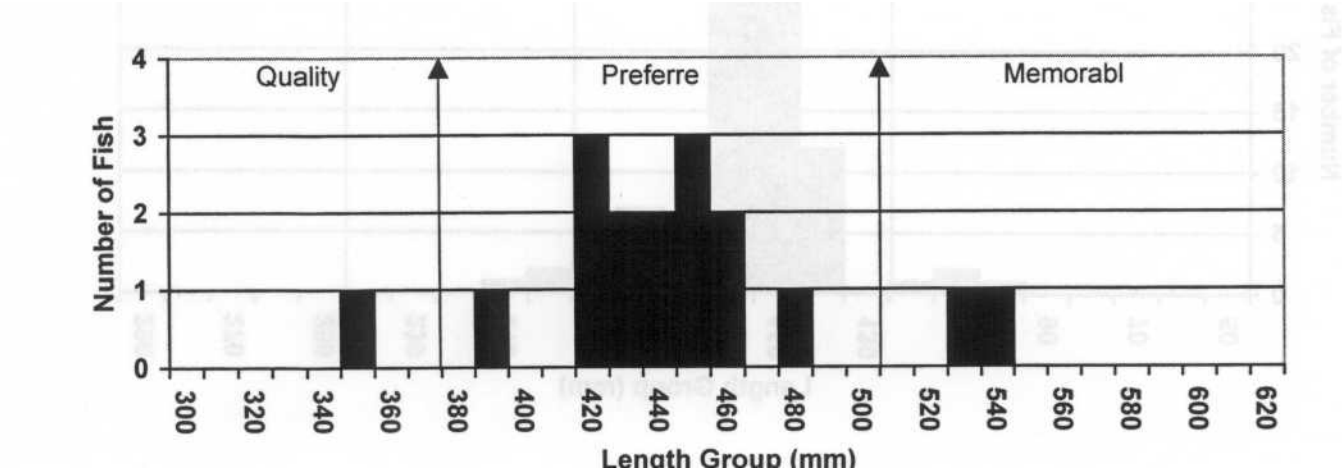
The largemouth bass population was not sampled effectively, due to ineffective electrofishing. Seventeen fish were caught with trap nets, which is a fairly high catch rate. The trap net CPUE was 1.7, which is well above the 0.6 seven year mean. There appears to be a good size distribution (Figure 4) with a PSD of 100 and an RSD-P of 94. One thing that was missing was the presence of new year classes coming up, but this information is probably lacking due to the sampling gear. The largemouth bass are in good condition with a Wr of 98

Table 7. Average back-calculated lengths (mm) for each age class of largemouth bass sampled from Lake Hurley, Potter County, 2002.

			Back-calculated Age								
Year Class	Age	N	1	2	3	4	5	6	7	8	9
1999	3	1	74	176	267						
1998	4	2	100	205	323	363					
1997	5	5	111	206	301	362	408				
1996	6	6	86	163	286	356	399	431			
1995	7	2	83	140	214	296	384	441	459		
1993	9	1	99	183	266	298	342	376	441	480	532
All Classes		**17**	**92**	**179**	**276**	**335**	**383**	**416**	**450**	**480**	**532**
Statewide Mean			96	182	250	305	342				
Region II Mean			105	183	246	296	328				
SLI* Mean			99	183	246	299	332				

* Small Lakes and Impoundments

Figure 4. Length frequency histogram for largemouth bass sampled from Lake Hurley, Potter County, 2002.



Walleye

Lake Hurley has a very small walleye population even with numerous attempts at fingerling stockings (Table 10). The size structure is on the small side with a PSD of 66 and an RSD-P of 0, although growth is above statewide and regional means (Table 8). The CPUE's were 0.6 for trap nets and 3.0 for gill nets, which were both above the mean CPUE's. The condition of the walleye is on the low side with a Wr of 78.

Table 8. Average back-calculated lengths (mm) for each age class of walleye sampled from Lake Hurley, Potter County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
1999	3	6	160	262	354		
1997	5	3	130	241	349	408	477
All Classes		**9**	**145**	**252**	**352**	**408**	**477**
Statewide Mean			142	241	299	339	360
Region II Mean			142	243	297	334	360

Table 9. Gill net (GN), trap net (TN), and electrofishing (EF) CPUE for all fish species sampled from Lake Hurley since 1980.

Species	1980	1982	1985	1988	1993	1996	1999	2002
Black Bullhead (GN)	21.0	6.0	53.0	--	--	--	--	--
Black Bullhead (TN)	190.6	131.3	289.9	188.5	15.6	9.5	--	--
Black Crappie (GN)	2.0	--	1.0	--	1.0	--	6.0	1.0
Black Crappie (TN)	16.1	34.4	4.3	--	4.6	2.5	42.1	28.7
White Crappie (GN)	--	--	--	--	--	--	--	--
White Crappie (TN)	--	--	--	46.6	--	--	--	--
Yellow Perch (GN)	77.0	--	3.0	--	11.0	37.0	61.0	70.0
Yellow Perch (TN)	5.0	--	2.0	2.8	1.3	5.0	0.9	2.3
Largemouth Bass (EF)	--	--	--	8.0	9.8	--	20.7	--
Largemouth Bass (GN)	--	--	--	--	--	--	--	--
Largemouth Bass (TN)	--	--	0.2	0.5	1.0	0.4	0.1	1.7
Northern Pike (GN)	7.0	--	1.0	--	1.0	2.0	9.0	7.0
Northern Pike (TN)	1.0	0.4	0.1	1.9	1.6	2.3	2.0	1.3
White Sucker (GN)	1.0	--	--	--	--	--	--	--
White Sucker (TN)	--	--	--	0.4	--	--	--	--
Walleye (EF)	--	--	--	2.0	--	--	--	--
Walleye (GN)	--	--	2.0	--	--	4.0	6.0	3.0
Walleye (TN)	0.3	0.3	0.2	1.0	0.5	0.4	--	0.6
Bluegill (GN)	--	--	--	--	--	--	--	3.0
Bluegill (TN)	3.1	0.8	8.1	56.7	9.8	12.0	7.1	5.6

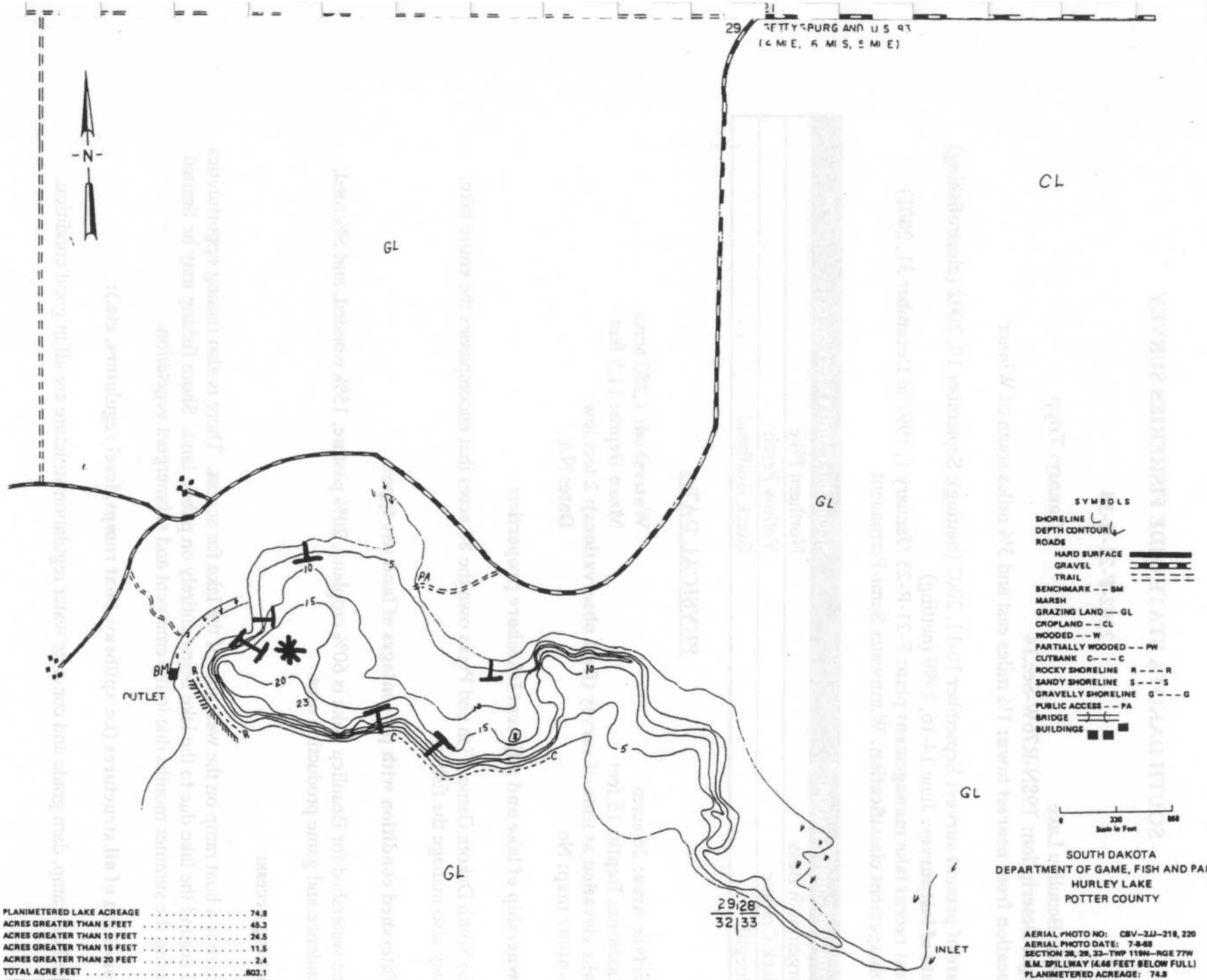
Table 10. Stocking records from 1992 to present for Lake Hurley, Potter County.

Year	Number	Species	Size
1992	1087	Walleye	Large Fingerling
1994	1975	Walleye	Fingerling
1997	1975	Walleye	Fingerling
1999	1975	Walleye	Fingerling

RECOMMENDATIONS

1. Resurvey again in 2005 with trap nets, gill nets and electrofishing to sample all fish species.

2. Stop stocking walleye into Lake Hurley. The stockings are not effective enough to produce a year class.



SYMBOLS

- SHORELINE
- DEPTH CONTOUR
- ROADS
  - HARD SURFACE
  - GRAVEL
  - TRAIL
- BENCHMARK -- BM
- MARSH
- GRAZING LAND --- GL
- CROPLAND -- CL
- WOODED -- W
- PARTIALLY WOODED -- PW
- CUTBANK C--- C
- ROCKY SHORELINE R--- R
- SANDY SHORELINE S--- S
- GRAVELLY SHORELINE G--- G
- PUBLIC ACCESS -- PA
- BRIDGE
- BUILDINGS

0 330 660
Scale in Feet

SOUTH DAKOTA
DEPARTMENT OF GAME, FISH AND PARKS
HURLEY LAKE
POTTER COUNTY

AERIAL PHOTO NO: CBV--2JJ--218, 220
AERIAL PHOTO DATE: 7-8-68
SECTION 28, 29, 33--TWP 119N--RGE 77W
B.M. SPILLWAY (4.46 FEET BELOW FULL)
PLANIMETERED ACREAGE: 74.8
MILES OF SHORELINE: 2.3

PLANIMETERED LAKE ACREAGE	74.8
ACRES GREATER THAN 5 FEET	45.3
ACRES GREATER THAN 10 FEET	24.5
ACRES GREATER THAN 15 FEET	11.5
ACRES GREATER THAN 20 FEET	2.4
TOTAL ACRE FEET	603.1
AVERAGE DEPTH	8.0 FEET

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Beaulieu Lake **County:** Tripp
Legal Description: T98N-R76W-Sec.14
Location from nearest town: 1½ miles east and 3½ miles south of Winner

Date of present survey: September 10-11, 2002 (netting); September 10, 2002 (electrofishing)
Date of last survey: June 14-16, 1999 (netting)
Most recent lake management plan: F-21-R-25 (January 1, 1997 to December 31, 2001)
Management classification: Warmwater Semi-Permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Northern Pike
Black Crappie	Yellow Perch
Bluegill	Black Bullhead

PHYSICAL **DATA**

Surface Area: 26 acres **Watershed:** 1,280 acres
Maximum Depth: 15 feet **Mean Depth:** 11.5 feet
Lake elevation at time of survey (field observations): 2 feet low
Contour map: No **Date:** NA

Ownership of lake and adjacent lakeshore properties:

The South Dakota Game, Fish and Parks own the 80 acres that encompasses the entire lake. They also manage the fishery.

Watershed condition with percentages of land use types:

The watershed for Beaulieu Lake is 60% cropland, 20% pasture, 15% wooded, and 5% road, residence and game production area.

Fishing access:

There is a boat ramp on the west side of the lake for access. There is also fishing opportunities all around the lake due to the lake being entirely on public land. Shore fishing may be limited during the summer months due to the emergent and submergent vegetation.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The boat ramp, dam grade and concrete water regulation structure are all in good condition.

Field observations of aquatic vegetation condition:

Emergent vegetation covers most of the shoreline. There is also heavy submergent vegetation in the shallow bay areas.

CHEMICAL DATA

Field observations of water quality and pollution problems:

The main degrading factor is siltation and nutrients from a nearby farm yard flowing into the watershed of the lake. This provides excess nutrients, which results in heavy vegetation growth. Water clarity is good with a secchi disc reading of 3.5 feet. Other water quality characteristics were measured in the field on September 10, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Beaulieu, Tripp County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc (ft)
A	Surface	72	7.39	64.6	285	367	8.3	3.5
A	14.5	70	7.45	60.4	292	329	8.0	

BIOLOGICAL DATA

Methods:

Beaulieu was sampled on September 10-11, 2002, with five overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and $^{3}/_{<}$ inch knotted mesh. No experimental gill nets were set this survey. On September 10, 2002, Beaulieu was electrofished for 20 minutes (2-ten minute transects) with pulse AC to sample the largemouth bass population. Conductivity was 720 uhmos with a water temperature of 73°F. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Out of the five overnight trap nets set, there were only five largemouth bass sampled. The largemouth bass were similar in size to the electrofishing fish from the night prior, so no measurements were taken. The population will be analyzed from the electrofishing sample.

Electrofishing Catch

Table 2. Total catch from two, ten-minute runs of fall nighttime electrofishing on Beaulieu Lake, Tripp County, September 10, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Largemouth Bass	94	100	282	± 55.4	--	0	0	109

* Winterkilled in the winter of 2000-2001 and restocked in 2001

Fish Population Status

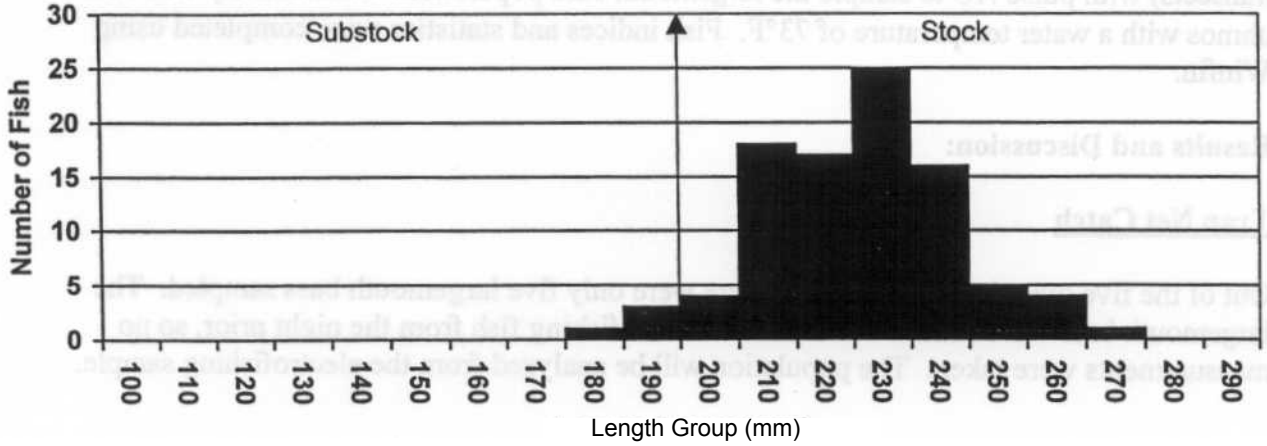
Largemouth bass was the only fish species seen during the present lake survey. After aging the scale samples, it was determined that all the fish sampled were from the stocking the occurred in the fall of 2001, which provides a good year class to start with for future management. The growth of the largemouth bass appears to be good with growth matching the statewide, regional and small lakes and impoundment averages (Table 3). The density of largemouth bass is great with CPUE of 282 fish per hour of electrofishing (Table 2). The high density of largemouth bass makes for a good predator base before any other species are introduced into the system. Beaulieu had been a good source for stocking panfish for other bodies of water, but maybe now with the restart and a good predator base, a balanced system can be attained.

Table 3. Average back-calculated lengths (mm) for each age class of largemouth bass in Beaulieu, Tripp County, 2002.

			Back-calculated Age
Year Class	Age	N	1
2001	1	94	107
All Classes			**107**
Statewide Mean			96
Region II Mean			105
SLI* Mean			99

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for largemouth bass sampled by electrofishing from Beaulieu, Tripp County, 2002.

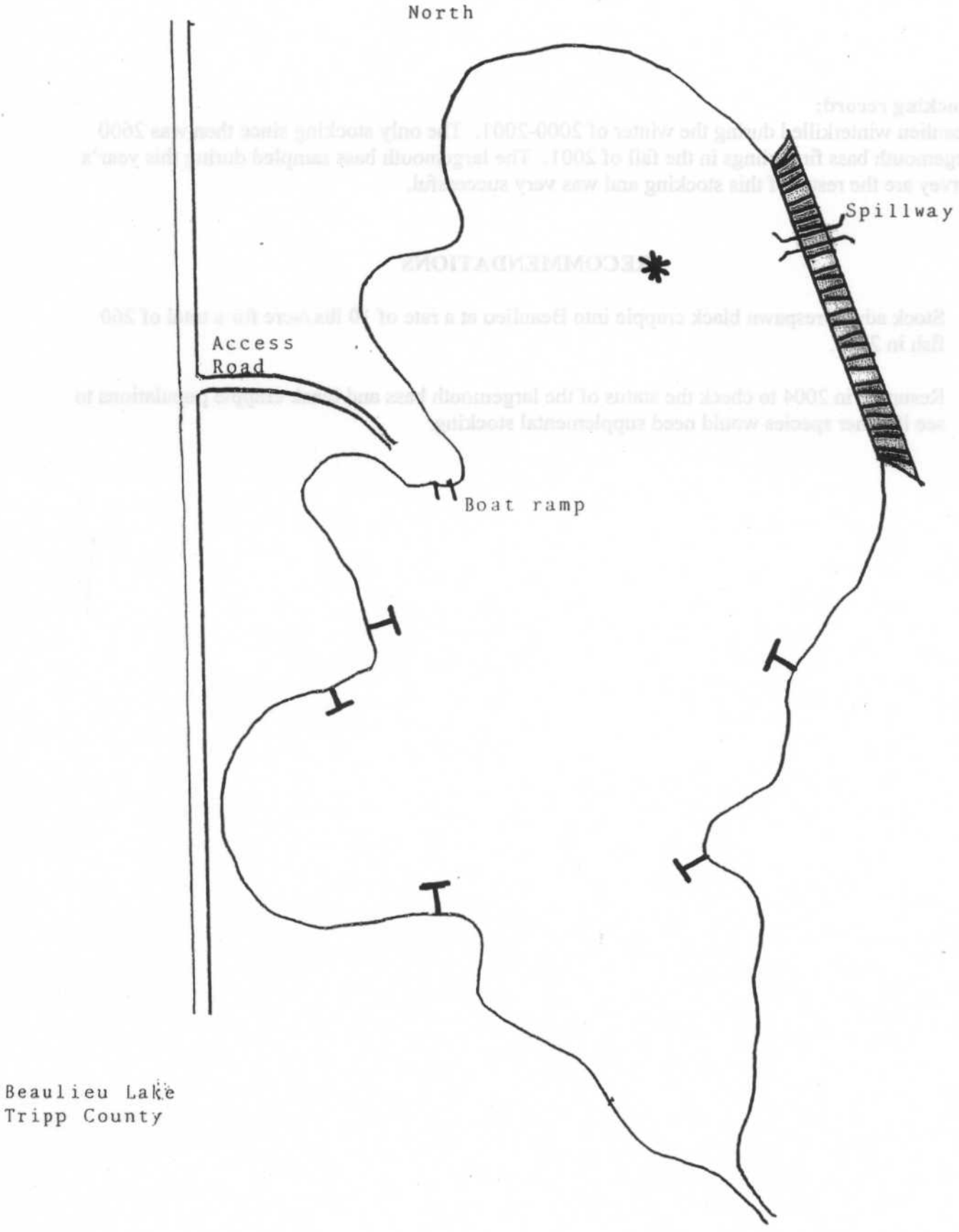


Stocking record:
Beaulieu winterkilled during the winter of 2000-2001. The only stocking since then was 2600 largemouth bass fingerlings in the fall of 2001. The largemouth bass sampled during this year's survey are the result of this stocking and was very successful.

RECOMMENDATIONS

1. Stock adult prespawn black crappie into Beaulieu at a rate of 10 lbs./acre for a total of 260 fish in 2003.

2. Resurvey in 2004 to check the status of the largemouth bass and black crappie populations to see if either species would need supplemental stocking.



Beaulieu Lake
Tripp County

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Rahn Lake County: Tripp
Legal Description: T96N-R76W-Sec. 28
Location from nearest town: 19 miles south and 1 1/2 miles east of Winner

Date of present survey: June 10-12, 2002 (netting); September 10, 2002 (electrofishing)
Date of last survey: June 28-30, 1999 (netting)
Most recent lake management plan: F-21-R-32 (January 1, 2000 to December 31, 2004)
Management classification: Warmwater Permanent

Primary Game Species	Secondary and Other Species
Northern Pike	Yellow Perch
Bluegill	Golden Shiner
Largemouth Bass	Black Bullhead
Black Crappie	Green Sunfish

PHYSICAL DATA

Surface Area: 13.6 acres **Watershed:** 19,840 acres
Maximum Depth: 16 feet **Mean Depth:** 6.3 feet
Lake elevation at time of survey (field observations): Full
Contour map: Yes **Date:** 1974

Ownership of lake and adjacent lakeshore properties:

Approximately 50% of the land adjoining the lake is owned by the South Dakota Game, Fish and Parks. The remaining land is privately owned.

Watershed condition with percentages of land use types:

Land use in the watershed is 50% hay and grazing, 30% cultivated, and 20% shelterbelts, roads and farmsteads.

Fishing access:

There is a boat ramp on the southwest corner of the lake for lake access. There is also an access road all along the west side of the lake with shoreline fishing access to the lake on the public land. The shoreline fishing is severely hindered due to vegetation during the summer months.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The dam grade, concrete spillway and boat ramp are all in good condition.

Field observations of aquatic vegetation condition:

Emergent vegetation is located along most of the shoreline with the exception of the dam face. The shallow areas, especially the upper portion of the lake, are nearly choked with submergent vegetation. A lot of filamentous algae was found throughout the lake.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident at the time of the survey. The water clarity was poor with a secchi disc reading of 1.5 feet. Other water quality characteristics were measured in the field on June 10, 2002, using a HACH water quality kit. The results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Rahn Lake, Tripp County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc
A	Surface	75	16.88	47	250	267	9.0	1.5
A	16	65	2.36	97	284	442	7.5	

BIOLOGICAL DATA

Methods:

Rahn Lake was sampled on June 10-12, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and ¾ in. knotted mesh. No experimental gill nets were set during this survey. On September 10, 2002, Rahn Lake was electrofished for 40 minutes (4-ten minute transects) with pulse AC to sample the largemouth bass population. Conductivity was 530 µhmos with a water temperature of 75 degrees F. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Black crappie was the dominant species sampled in this survey making up 64.7% of the total catch. Black bullhead and bluegills were next in abundance at 17.7% and 13.7% respectfully. Other species sampled in the survey were northern pike (2.2%), green sunfish (1.2%), and yellow perch (0.5%).

Table 2. Total catch of ten, overnight'/4-inch frame nets at Rahn Lake, Tripp County, June 10-12,2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Crappie	419	64.7	41.9	± 12.8	4.0	42	0	90
Black Bullhead	115	17.7	11.5	± 6.7	69.0	98	0	84
Bluegill	89	13.7	8.9	± 3.3	29.5	79	0	98
Northern Pike	14	2.2	1.4	± 0.4	4.1	100	7	81
Green Sunfish	8	1.2	0.8	± 0.5	0.9	--	--	116
Yellow Perch	3	0.5	0.3	± 0.2	2.4	--	--	94

* Four year mean catch (1990, 1992, 1996, and 1999; partial winterkill with low catches in 1986)

Electrofishing Catch

There appears to be a very good largemouth bass population in Rahn Lake with a fall electrofishing CPUE of 112.5 bass/hour.

Table 3. Total catch from four, ten-minute runs of fall nighttime electrofishing on Rahn Lake, Tripp County, September 10, 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Largemouth Bass	75	100	112.5	± 24.5	0.0	18	14	110

* No history in the last four surveys of electrofishing

Largemouth Bass

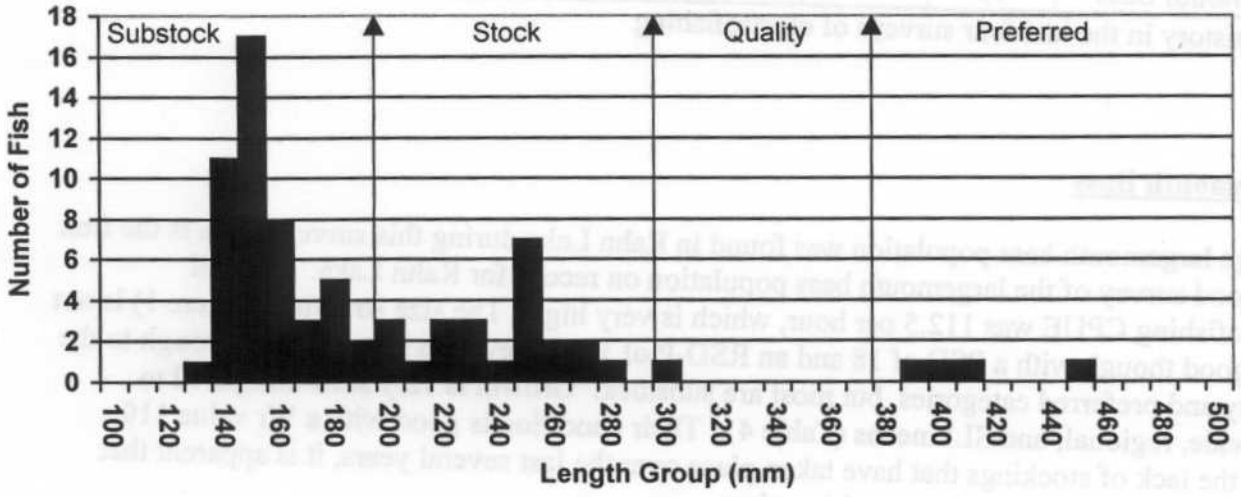
A large largemouth bass population was found in Rahn Lake during this survey. This is the first real good survey of the largemouth bass population on record for Rahn Lake. The fall electrofishing CPUE was 112.5 per hour, which is very high. The size structure (Figure 1) is not very good though with a PSD of 18 and an RSD-P of 14. A few fish have broken through to the quality and preferred categories, but most are substock. Growth is very slow compared to statewide, regional, and SLI means (Table 4). Their condition is good with a Wr value 110. With the lack of stockings that have taken place over the last several years, it is apparent that there is some natural recruitment taking place.

Table 4. Average back-calculated lengths (mm) for each age class of largemouth bass sampled by electrofishing from Rahn Lake, Tripp County, 2002.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
2001	1	39	103					
2000	2	15	84	146				
1999	3	8	75	125	164			
1998	4	3	70	119	158	232		
1996	6	2	77	101	192	247	318	389
All Classes		**67**	**82**	**123**	**171**	**240**	**318**	**389**
Statewide Mean			96	182	250	305	342	
Region II Mean			105	183	246	296	328	
SLI* Mean			99	183	246	299	332	

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for largemouth bass sampled by electrofishing on Rahn Lake, Tripp County, 2002.



Black Crappie

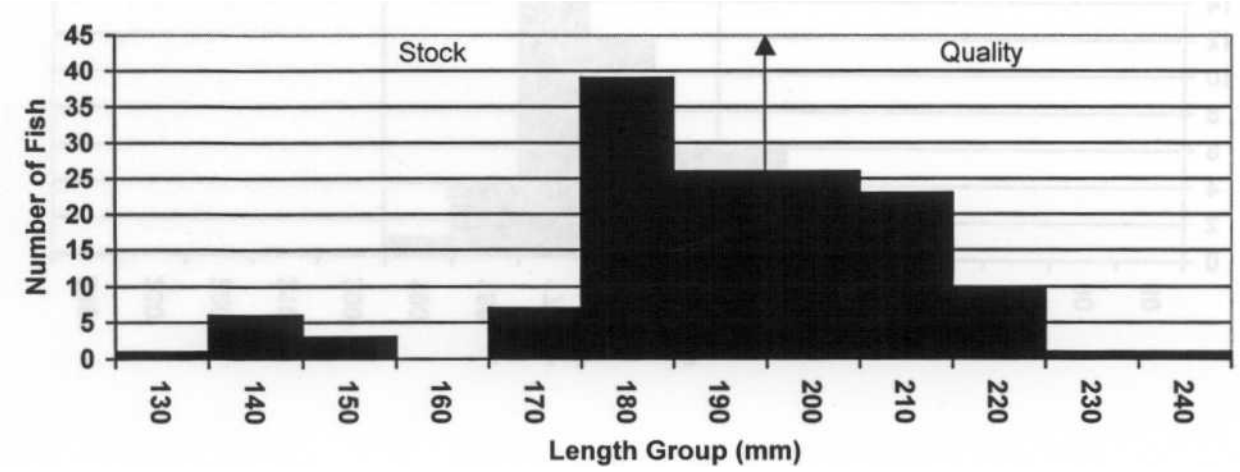
Black crappies have become the dominant species sampled in the trap nets during this survey. The CPUE has increased to an all time high of 41.9, which has increased from the 11.3 in the 1999 survey and the four year mean of 4.0. The size structure (Figure 2) is fine for an increasing population with a PSD of 42. Their condition is good with a Wr value of 90. This population might be starting to stunt, due to growth comparable to statewide, regional and SLI averages until the fish get older then growth begins to slow down. The population will have to be monitored to insure that they do not start to stunt, which could very easily happen in the small water body with so many panfish species. Hopefully the large largemouth bass and fair northern pike populations will control this.

Table 5. Average back-calculated lengths (mm) for each age class of black crappie sampled from Rahn Lake, Tripp County, 2002.

			Back-calculated Age					
Year Class	Age	N	1	2	3	4	5	6
2000	2	10	86	140				
1999	3	69	80	141	181			
1998	4	4	86	133	168	192		
1997	5	57	80	138	163	190	208	
1996	6	4	82	132	172	195	212	230
All Classes		**144**	**83**	**137**	**171**	**193**	**210**	**230**
Statewide Mean			83	147	195	229	249	
Region II Mean			75	132	177	209	235	
SLI* Mean			78	134	180	209	226	

* Small Lakes and Impoundments

Figure 2. Length frequency histogram for black crappie sampled on Rahn Lake, Tripp County, 2002.



Bluegill

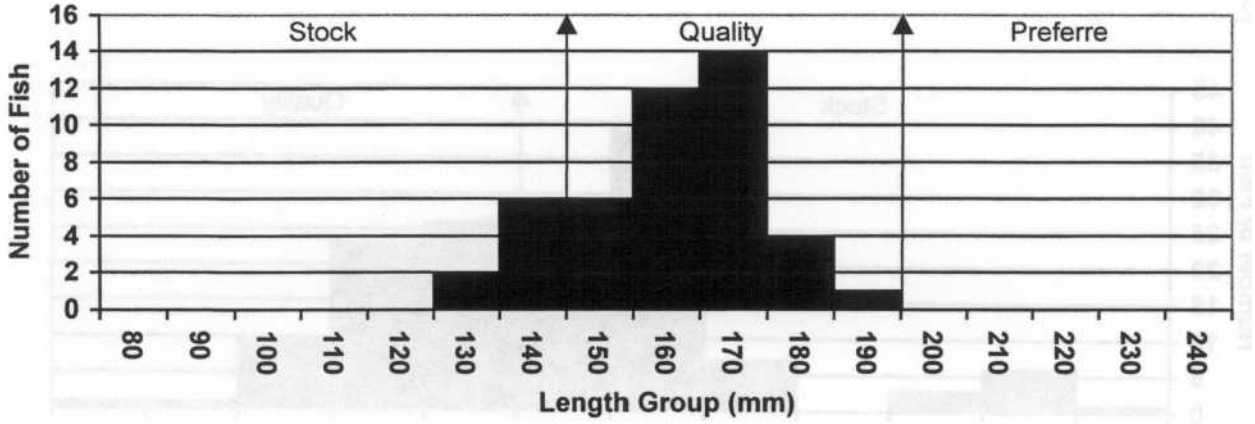
The bluegill CPUE has again decreased this survey to 8.9, which is down from the 18.0 in 1999 and the four year mean of 29.5. Growth for bluegills is well below the statewide, regional and SLI means (Table 6). Their condition is good with a Wr value of 98. The size structure (Figure 3) along with the slow growth indicates that this population is stunted. The PSD of 78 has increased over the past three surveys, but no fish are moving up out of the size range. The younger fish in the population are growing to the size of the others and slowing down. This population could use to have a number of these fish removed to hopefully allow the remaining fish to move up in size.

Table 6. Average back-calculated lengths (mm) for each age class of bluegill sampled from Rahn Lake, Tripp County, 2002.

			Back-calculated Age						
Year Class	Age	N	1	2	3	4	5	6	7
1999	3	12	47	79	133				
1998	4	21	52	81	116	155			
1997	5	11	51	85	115	138	162		
1996	6	8	46	75	104	130	152	171	
1995	7	3	41	71	89	113	132	149	167
All Classes		**55**	**48**	**78**	**111**	**134**	**149**	**160**	**167**
Statewide Mean			55	103	141	166	180		
Region 11 Mean			52	97	134	164	180		
SLI* Mean			53	101	138	163	180		

* Small Lakes and Impoundments

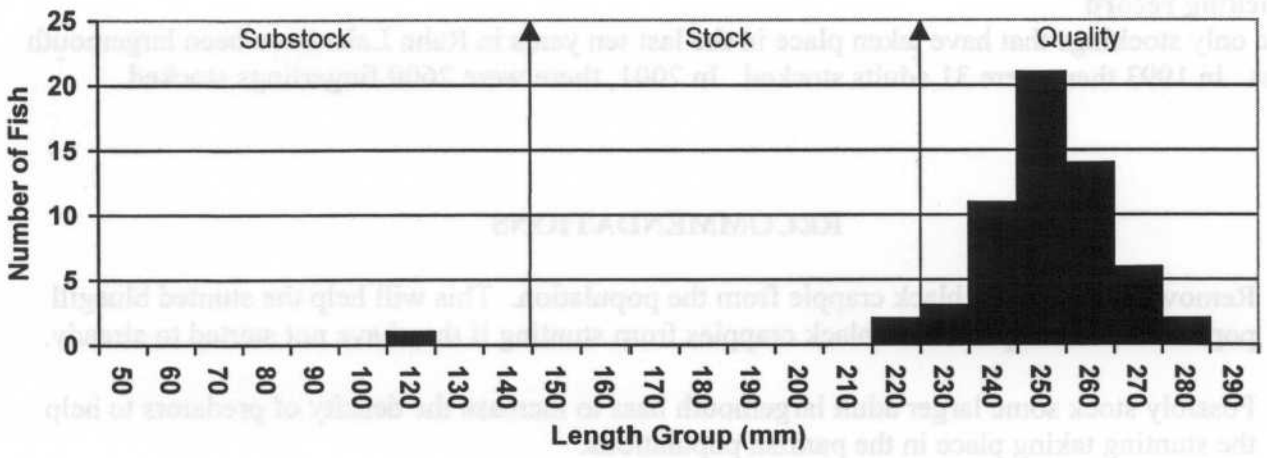
Figure 3. Length frequency histogram for bluegill sampled on Rahn Lake, Tripp County, 2002.



Black Bullhead

The overall black bullhead populations it improving. The CPUE of 11.5 is down from the 58.1 in 1999 and the four year mean of 69.0. To go along with the decrease in catches, the size structure is improving with a PSD of 98, which is up from 0 in 1996 and 2 in 1999. Their condition is fine with a Wr value of 84. This trend should continue due to the lack of any young bullheads in the length frequency (Figure 4).

Figure 4. Length frequency histogram for black bullhead sampled on Rahn Lake, Tripp County, 2002.



Other Species

Northern pike were also sampled in the survey. They appear to have a fair population of larger fish with a PSD of 100 and an RSD-P of 7, although their CPUE has declined over the past few surveys. This presence will help the largemouth bass as the predator to control the panfish populations in Rahn Lake.

Green sunfish and yellow perch were sampled in this survey. Both species have seen decreases in their CPUE's from the past few surveys.

Table 7. Trap net CPUE for all fish species sampled in Rahn Lake since the partial winterkill and low catches in 1986.

Species	1990	1992	1996	1999	2002
Black Bullhead	82.4	42.1	93.5	58.1	11.5
Black Crappie		0.7	4.1	11.3	41.9
Yellow Perch	4.5	2.7	1.6	0.8	0.3
Largemouth Bass	0.4			0.1	
Northern Pike	7.3	0.1	7.6	1.4	1.4
Bluegill	71.9	11.1	17.1	18.0	8.9
Green Sunfish		0.2	2.3	1.1	0.8
Golden Shiner	0.1		0.1		

Stocking record

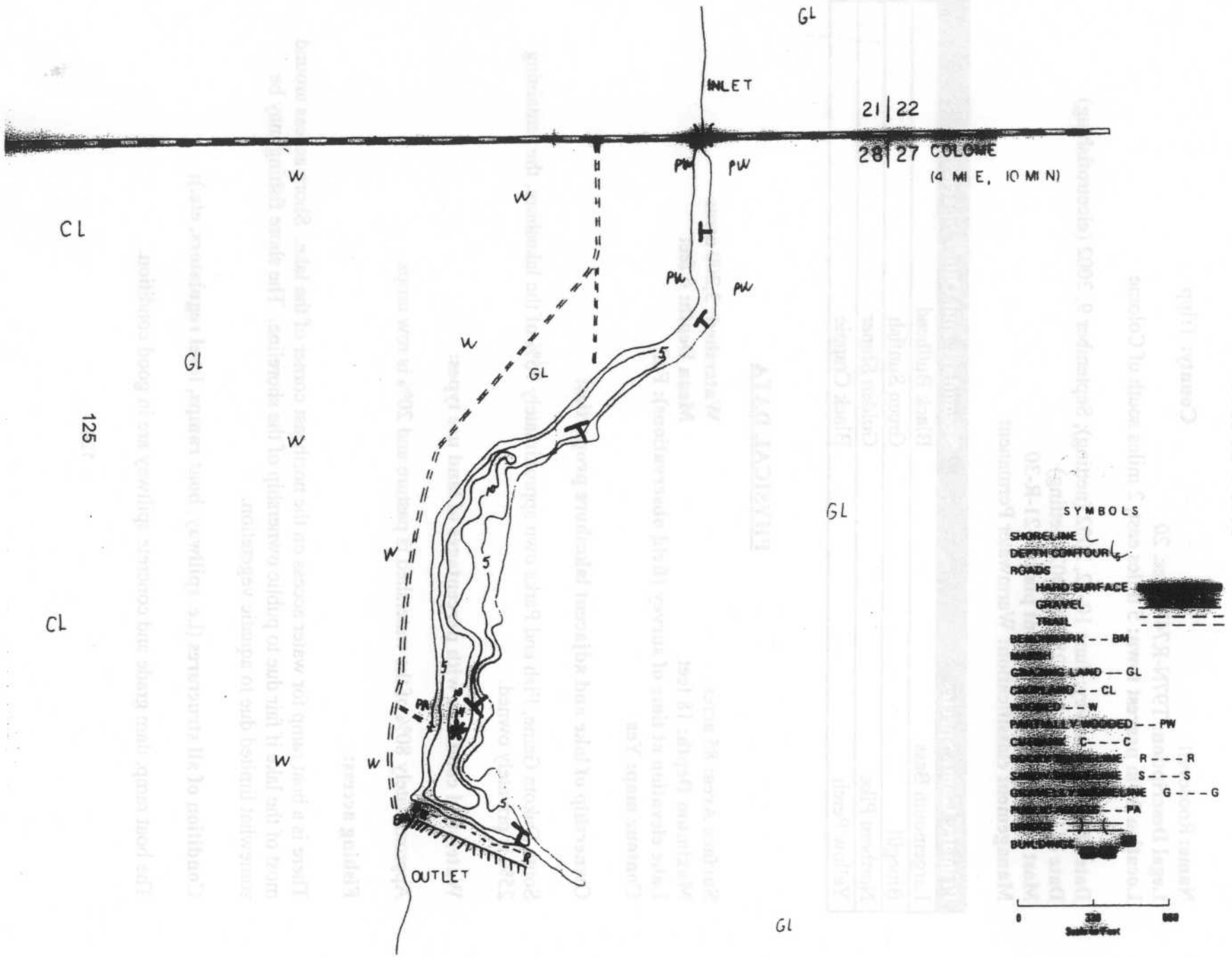
The only stockings that have taken place in the last ten years in Rahn Lake have been largemouth bass. In 1993 there were 31 adults stocked. In 2001, there were 2600 fingerlings stocked.

RECOMMENDATIONS

1. Remove bluegills and black crappie from the population. This will help the stunted bluegill population and help curb the black crappies from stunting if they have not started to already.

2. Possibly stock some larger adult largemouth bass to increase the density of predators to help the stunting taking place in the panfish populations.

3. Resurvey in 2005 to monitor all fish populations.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CROPLAND -- CL
WOODED -- W
PARTIALLY WOODED -- PW
CEMETERY C---C
RAILROAD R---R
SCHOOL S---S
GRAVEL PIT LANE G---G
PUBLIC LAND -- PA
BRIDGE
BUILDINGS
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Scale in Feet

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Roosevelt **County:** Tripp
Legal Description: T97N-R74W-Sec. 20
Location from nearest town: 5 miles east, 2 miles south of Colome

Date of present survey: June 10-12, 2002 (netting); September 9, 2002 (electrofishing)
Date of last survey: June 28-30, 2002 (netting)
Most recent lake management plan: F-21-R-30
Management classification: Warmwater Permanent

Primary Game Species	Secondary an Other Species
Largemouth Bass	Black Bullhead
Bluegill	Green Sunfish
Northern Pike	Golden Shiner
Yellow Perch	Black Crappie

PHYSICAL DATA

Surface Area: 85 acres **Watershed:** 3,200 acres
Maximum Depth: 18 feet **Mean Depth:** 6 feet
Lake elevation at time of survey (field observations): Full
Contour map: Yes

Ownership of lake and adjacent lakeshore properties:

South Dakota Game, Fish and Parks own approximately 75% of the lakeshore, the remaining 25% is privately owned.

Watershed condition with percentages of land use types:

Approximately 80% of the watershed is pasture and 20% is row crops.

Fishing access:

There is a boat ramp for water access on the northeast corner of the lake. Shore access around most of the lake if fair due to public ownership of the shoreline. The shore fishing may be somewhat limited due to aquatic vegetation.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The boat ramp, dam grade and concrete spillway are in good condition.

Field observations of aquatic vegetation condition:

Cattails surround the entire shoreline and there is heavy submergent vegetation throughout the lake.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident at the time of the survey. Water clarity was excellent with a secchi disc reading of 6 feet. Other water quality characteristics were measured in the field on June 10, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Roosevelt, Tripp County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc (ft)
A	Surface	70	6.59	50	109	273	8.0	6
A	18	70	1.33	48	213	285	8.0	

BIOLOGICAL DATA

Methods:

Roosevelt Lake was sampled on June 10-12, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and ¾ inch knotted mesh. One experimental gill net was also set. The gill net is 150 ft. x 6 ft. with 25 ft panels of ½, ¾, 1, 1-1/4, 1-1/2, and 2 inch monofilament mesh. On September 9, 2002, Roosevelt Lake was electrofished for 40 minutes (4-ten minute transects) with pulse AC to sample the largemouth bass population. Conductivity was 480 μhmos with a water temperature of 72°F. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Electrofishing Catch

Electrofishing revealed an excellent largemouth bass population. The CPUE was 112.5 per hour.

Table 2. Total catch from four, ten-minute runs of fall nighttime electrofishing on Roosevelt, Tri Count Se tember 9 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Largemouth Bass	75	97.4	112.5	t 46.3	13.0	78	78	110
Walleye	2	2.6	3.0	± 2.8	--	100	0	91

* One year mean (1986)

Gill net catch

Yellow perch was the most dominant species sampled in the gill nets at 67.8%. Other species sampled were walleye (6.8%), black crappie (5.9%), bluegill (5.9%), largemouth bass (5.9%), northern pike (4.2%), and black bullhead (3.4%).

Table 3. Total catch of one, 150 ft. experimental gill nets at Roosevelt, Tripp County, June 10-12 2002.

Species	#	%	CPUE	CPUE*	PSD	RSD-P	Mean
Yellow Perch	80	67.8	80.0	27.3	35	3	100
Walleye	8	6.8	8.0	--	100	0	90
Black Crappie	7	5.9	7.0	--	100	29	93
Bluegill	7	5.9	7.0	--	86	43	100
Largemouth Bass	7	5.9	7.0	0.3	86	0	119
Northern Pike	5	4.2	5.0	1.7	100	60	93
Black Bullhead	4	3.4	4.0	42.3	100	100	85

* Three year mean (1976, 1981, and 1984)

Trap Net Catch

Bluegills were the dominant species sampled with 60.3% of the total catch. Black bullhead was the second most frequently sampled with 26.7%. Other species sampled were yellow perch (4.9%), black crappie (4.5%), northern pike (3.2%), and green sunfish (0.4%).

Table 4. Total catch of ten, overnight 3/4-inch frame nets at Roosevelt, Tripp County, June 10-12 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Bluegill	149	60.3	14.9	± 6.7	13.4	84	19	108
Black Bullhead	66	26.7	6.6	± 1.3	26.6	98	97	**88**
Yellow Perch	12	4.9	1.2	± 0.8	9.2	75	50	93
Black Crappie	11	4.5	1.1	± 0.5	0.2	73	9	95
Northern Pike	8	3.2	0.8	± 0.6	1.2	57	0	85
Green Sunfish	1	0.4	0.1	± 0.1	0.1	--	--	137

* Eleven year mean (1970, 1976, 1979, 1981, 1984, 1986, 1990, 1992-93, 1996, and 1999)

Largemouth Bass

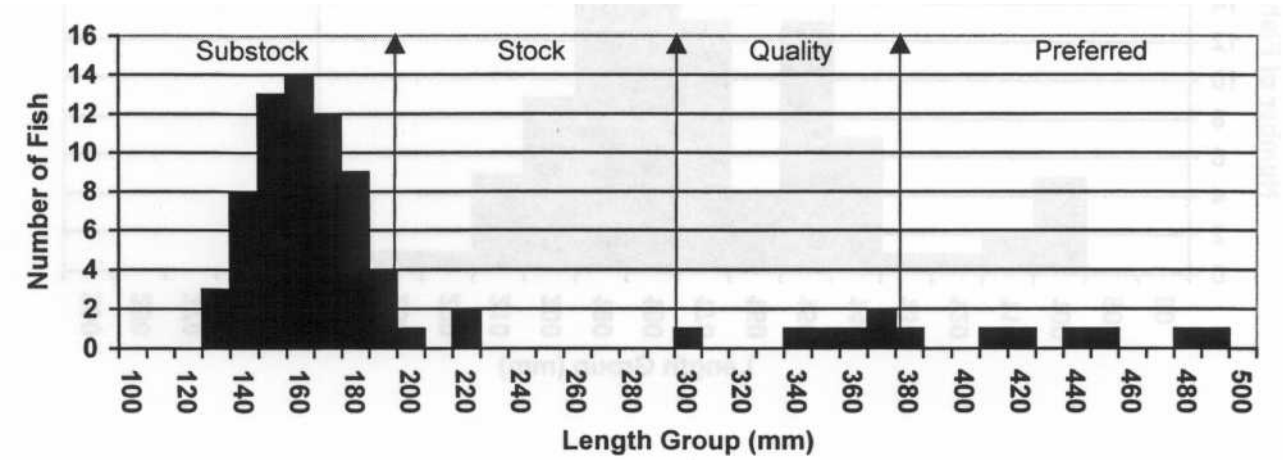
The largemouth bass population appears to be in good shape. There is a good size distribution of fish with natural reproduction producing new year classes (Figure 1). The CPUE was high at 112.5 per hour of electrofishing, with most of these fish falling in the substock category, seven largemouth bass were caught in the one gill net. Otherwise, the PSD and RSD-P were both 78. Growth is a little slower than the statewide, regional and SLI means (Table 5), but the condition of the largemouth bass is good with a Wr of 110.

Table 5. Average back-calculated lengths (mm) for each age class of largemouth bass sampled from Roosevelt, Tripp County, 2002.

			Back-calculated Age								
Year Class	Age	N	1	2	3	4	5	6	7	8	9
2001	1	52	94								
2000	2	16	60	103							
1999	3	1	84	157	223						
1998	4	2	88	190	264	326					
1997	5	1	61	133	195	275	342				
1996	6	2	84	154	231	290	342	359			
1995	7	2	76	134	210	278	319	355	371		
1994	8	3	88	152	216	274	324	360	405	432	
1993	9	1	46	103	178	226	261	304	331	364	390
All Classes		**80**	**76**	**141**	**217**	**278**	**318**	**345**	**369**	**398**	**390**
Statewide Mean			96	182	250	305	342				
Region II Mean			105	**183**	246	296	328				
SLI* Mean			99	183	246	299	332				

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for largemouth bass sampled from Roosevelt, Tripp County, 2002.



Bluegill

Bluegills were by far the dominant species sampled in this survey. Their CPUE was 14.9, which is above the eleven year mean CPUE of 13.4 and well above the last survey's 4.8 (Table 7). The size structure (Figure 2) is excellent with a trap net PSD of 84 and an RSD-P of 19. Roosevelt Lake continually produces bluegills that exceeded 8-9 inches each survey. Growth is right around the statewide, regional and SLI means (Table 6). Their condition is good with a Wr value of 108.

Table 6. Average back-calculated lengths (mm) for each age class of bluegill sampled from Roosevelt, Tripp County, 2002.

			Back-calculated Age							
Year Class	Age	N	1	2	3	4	5	6	7	8
1999	3	31	43	86	147					
1998	4	31	46	92	135	172				
1997	5	51	47	**88**	134	167	185			
1996	6	26	47	96	135	165	187	201		
1995	7	6	49	88	128	157	189	202	211	
1994	8	5	49	90	143	174	200	221	229	240
All Classes		**204**	**47**	**90**	**137**	**167**	**190**	**208**	**220**	**240**
Statewide Mean			55	103	141	166	180			
Region II Mean			52	97	134	164	180			
SLI* Mean			53	101	138	163	180			

* Small Lakes and Impoundments

Figure 2. Length frequency histogram for bluegill sampled from Roosevelt, Tripp County, 2002.

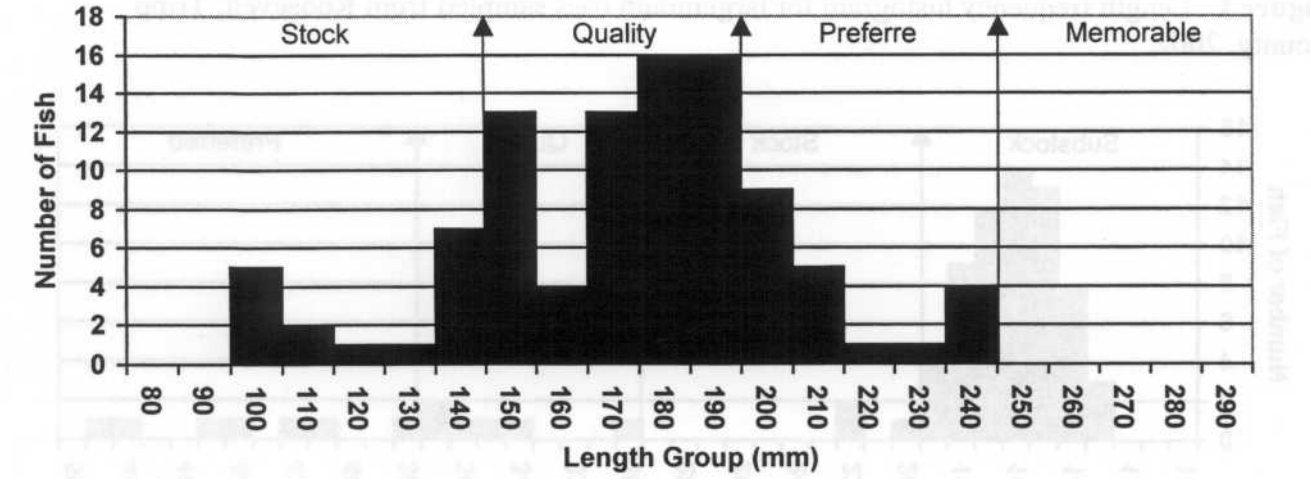
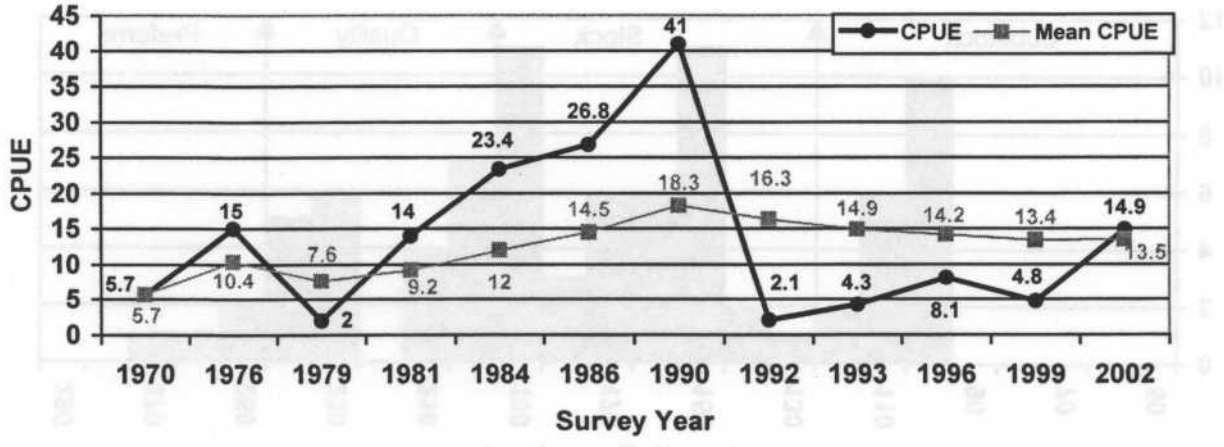


Table 7. Comparison of the trap net CPUE and mean CPUE of bluegill during the last twelve lake surveys from 1970 to the present for Roosevelt Lake, Tripp County.



Yellow Perch

Roosevelt Lake contains a fair yellow perch population. The gill net CPUE is 80 and the trap net CPUE is 1.2, which is below the 1.9 from the last survey and the 7.8 twelve year mean (Table 9). The mean CPUE over the last twelve surveys is elevated due to the high catch of 72.8 in the 1979 survey. Growth is slightly below the statewide, regional and SLI means (Table 8). The average size of the yellow perch is small with a gill net PSD of 35 and RSD-P of 3, which is similar to the total population of 39 and 6, respectively.

Table 8. Average back-calculated lengths (mm) for each age class of yellow perch sampled from Roosevelt, Tripp County, 2002.

			Back-calculated Age						
Year Class	Age	N	1	2	3	4	5	6	7
2000	2	23	82	147					
1999	3	4	79	118	159				
1998	4	5	75	127	162	179			
1997	5	19	75	115	148	176	201		
1996	6	13	77	**118**	160	197	231	244	
1995	7	5	72	108	143	177	214	244	258
All Classes		**69**	77	**122**	**154**	**182**	**215**	**244**	**258**
Statewide Mean			86	145	190	220	242		
Region 11 Mean			91	152	196	219	242		
SLI* Mean			87	142	185	205	219		

* Small Lakes and Impoundments

Figure 3. Length frequency histogram for yellow perch sampled from Roosevelt, Tripp County, 2002.

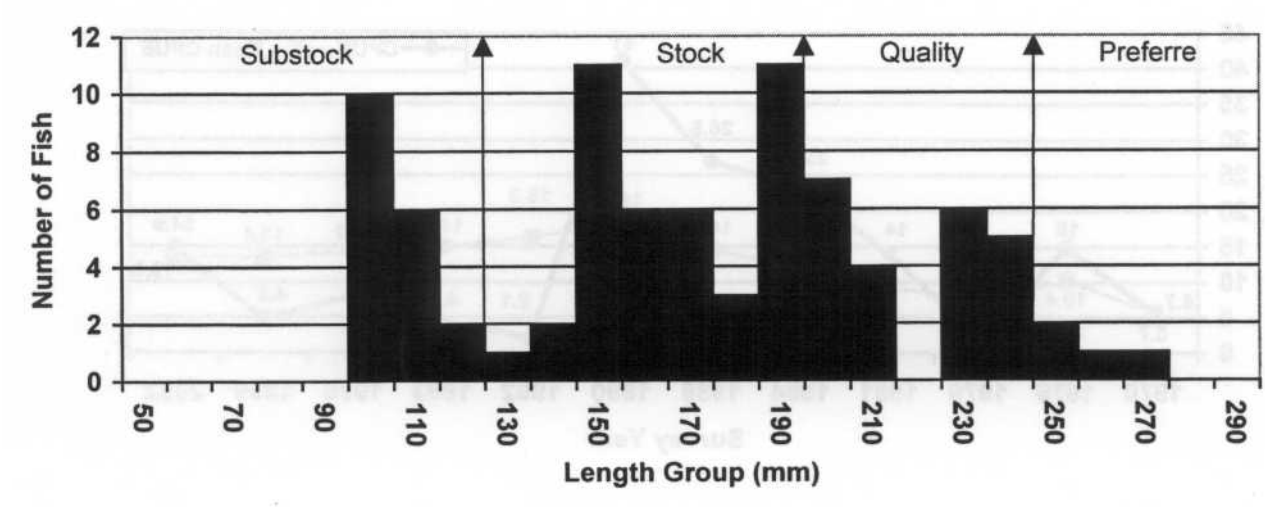
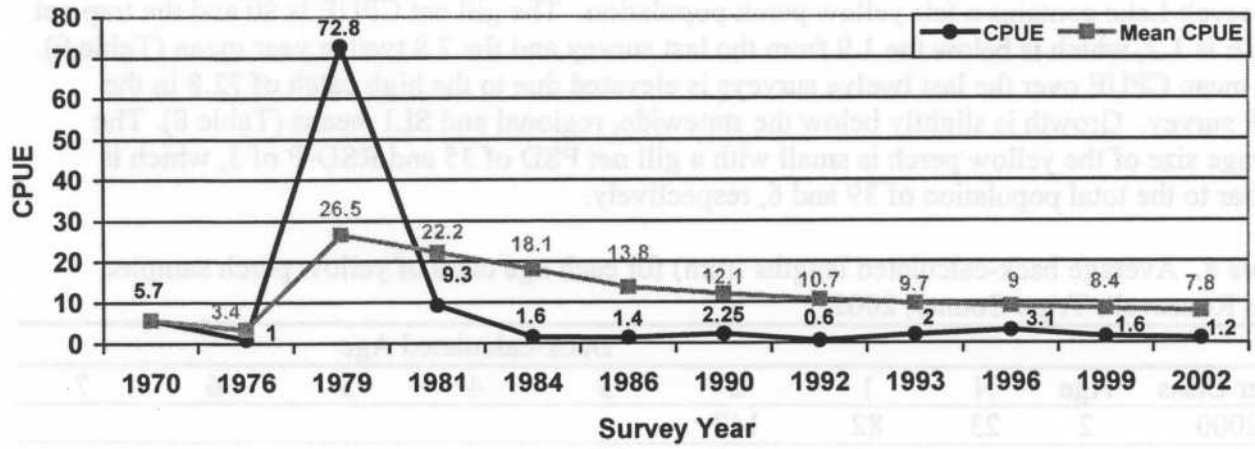


Table 9. Comparison of the trap net CPUE and mean CPUE of yellow perch from the last twelve lake surveys from 1970 to the present for Roosevelt, Tripp County.



Black Crappie

The black crappie population in Roosevelt is small with a trap net CPUE of 1.1, which is up from the eleven year mean CPUE of 0.2. Black crappies are the only species in the system that have growth rates at or above the statewide, regional and SLI means (Table 10). Their condition is good with a Wr of 95. For a small population, their size structure is fine with a PSD of 73 and an RSD-P of 9.

Table 10. Average back-calculated lengths (mm) for each age class of black crappie sampled from Roosevelt, Tripp County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
2000	2	3	81	171			
1999	3	12	76	146	218		
1998	4	2	102	218	252	279	
1997	5	1	96	190	232	255	279
All Classes		**18**	**89**	**181**	**234**	**267**	**279**
Statewide Mean			83	147	195	229	249
Region II Mean			75	132	177	209	235
SLI* Mean			78	134	180	209	226

* Small Lakes and Impoundments

Walleye

A small walleye population exists in Roosevelt Lake despite recent stocking efforts. The few fish in the population have a very slow growth rate compared to statewide, regional and SLI means (Table 11). The CPUE was only 8 in one gill net with a PSD of 100 and an RSD-P of 0. Their condition is a little on the low side with a Wr value of 90. Walleye have not historically done well in Roosevelt Lake (Table 14).

Table 11. Average back-calculated lengths (mm) for each age class of walleye sampled from Roosevelt, Tripp County, 2002.

			Back-calculated Age							
Year Class	Age	N	1	2	3	4	5	6	7	8
1998	4	1	129	226	347	411				
1997	5	3	114	194	298	375	438			
1996	6	1	94	146	**218**	287	344	402		
1994	8	1	104	141	185	244	307	367	417	437
All Classes		**6**	**110**	**177**	**262**	**329**	**363**	**384**	**417**	**437**
Statewide Mean			168	279	360	425	490			
Region II Mean			169	282	346	408	455			
SLI* Mean			176	271	384	431	483			

* Small Lakes and Impoundments

Black Bullhead

The CPUE of 6.6 is up from 0.8 in the 1999 survey, but is still well below the eleven year mean of 26.6 (Table 13). The mean CPUE is elevated due to the extremely high catch of 231 during the 1976 survey. Growth is well above the statewide average (Table 12). Their condition is a

little on the low side with a Wr of 88. The size structure looks good (Figure 4) with a PSD of 98 and an RSD-P of 97.

Table 12. Average back-calculated lengths (mm) for each age class of black bullhead sampled from Roosevelt, Tripp County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
1999	3	4	223	268	305		
1998	4	59	145	227	289	**327**	
1997	5	6	163	256	297	333	350
All Classes		**69**	**177**	**250**	**297**	**330**	**350**
Statewide Mean			101	155	203	232	262

Figure 4. Length frequency histogram for black bullhead sampled in Roosevelt, Tripp County, 2002.

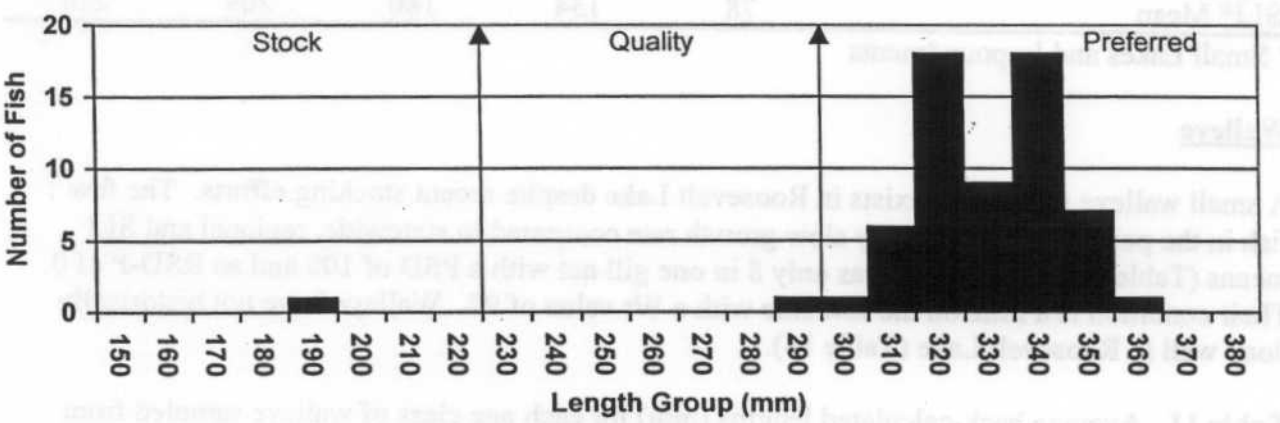


Table 13. Comparison of the trap net CPUE and mean CPUE of black bullhead from the last twelve lake surveys from 1970 to the present for Roosevelt, Tripp County.

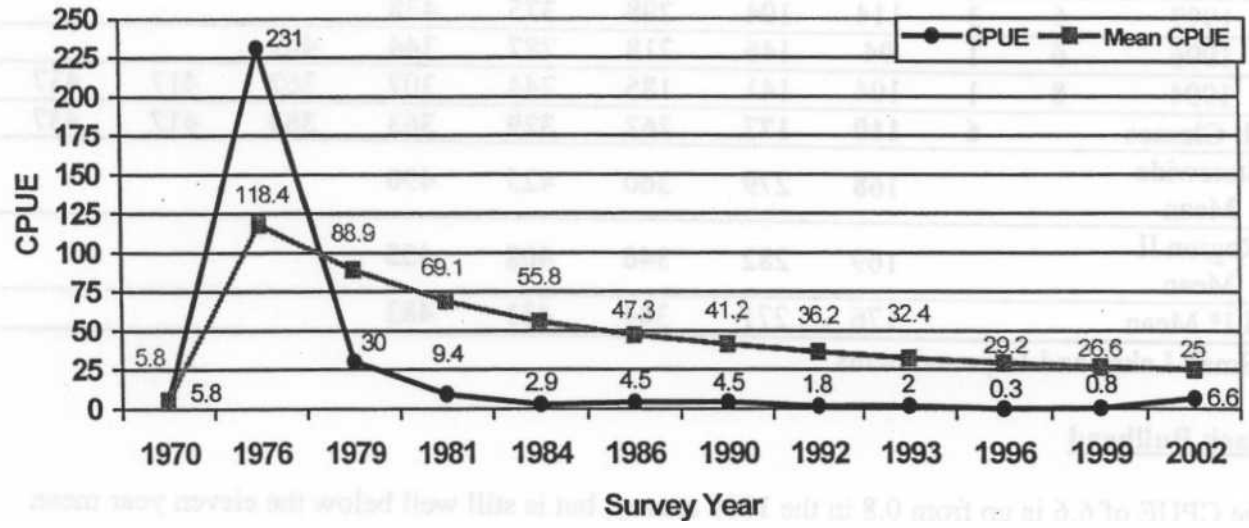


Table 14. Gill net (GN), trap net (TN), and electrofishing (EF) CPUE for all fish species sampled in Roosevelt since the last chemical rehabilitation in 1959.

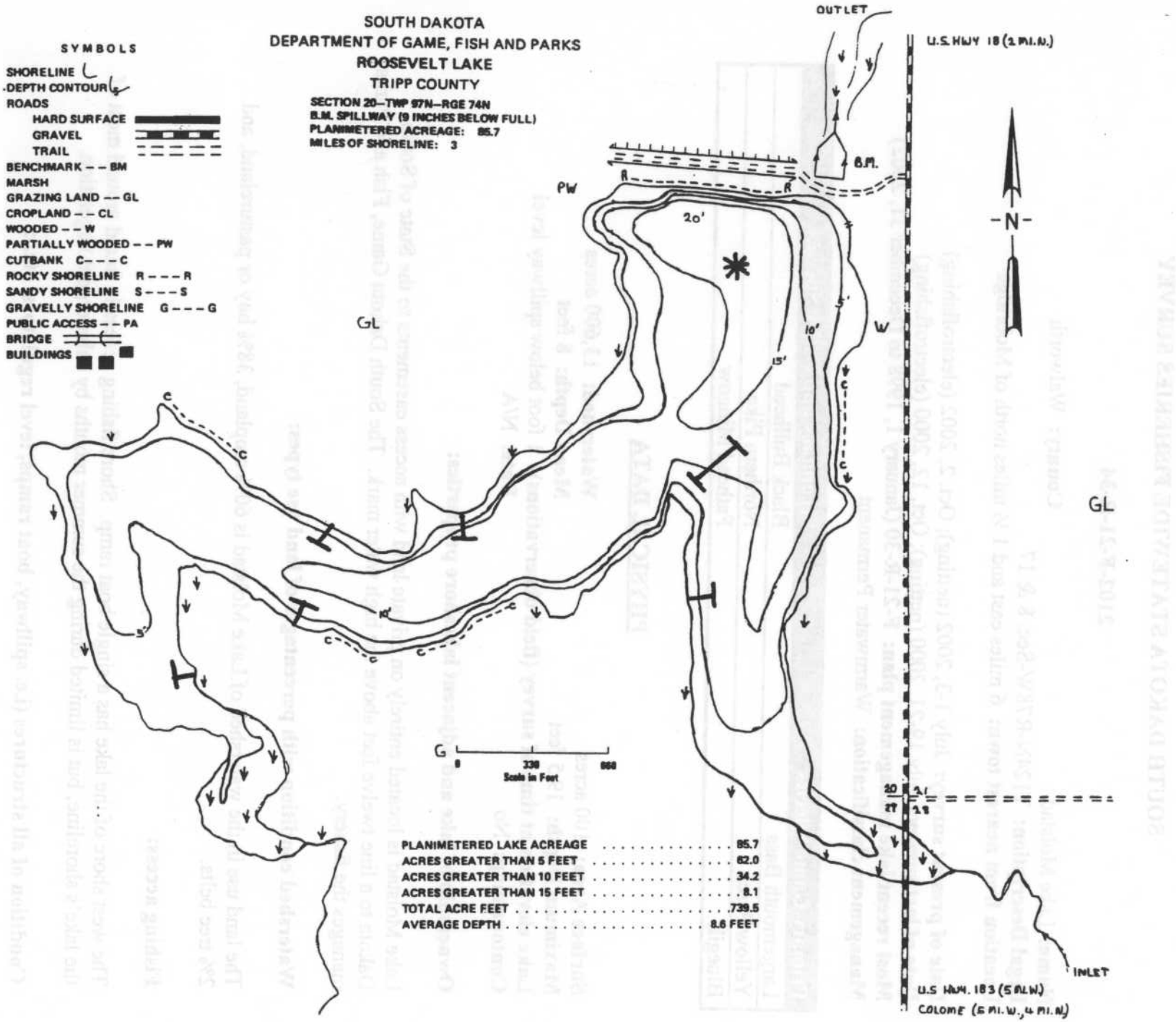
Species	1970	1976	1979	1981	1984	1986	1990	1992	1993	1996	1999	2002
Black Bullhead (GN)		100	--	27.0								4.0
Black Bullhead (TN)	5.8	231	30.0	9.4	2.9	4.5	4.5	1.8	2.0	0.3	0.8	6.6
Black Crappie (GN)	--											7.0
Black Crappie (TN)	--							0.1			2.3	1.1
Yellow Perch (GN)	--	28.0	--	46.0	8.0							80.0
Yellow Perch (TN)	5.7	1.0	72.8	9.3	1.6	1.4	2.25	0.6	2.0	3.1	1.6	1.2
Yellow Perch (EF)	--					10.0						
Largemouth Bass (GN)				1.0								7.0
Largemouth Bass (TN)	0.8			0.3	0.1	0.3	0.38	0.1			0.3	
Largemouth Bass (EF)						13.0						112.5
Northern Pike (GN)		4.0	--	1.0								5.0
Northern Pike (TN)	3.1	1.3	2.87	0.4	1.1	1.0	0.63		0.1	1.0	1.9	0.8
Northern Pike (EF)		--	--	--		3.0						
White Sucker (GN)		10.0	--	2.0								
White Sucker (TN)		3.0	0.75	0.5	0.4							
Walleye (GN)												8.0
Walleye (TN)					0.3	0.1				0.4	0.4	
Bluegill (GN)												7.0
Bluegill (TN)	5.7	15.0	2.0	14.0	23.4	26.8	41.0	2.1	4.3	8.1	4.8	14.9
Bluegill (EF)					--	9.0						
Green Sunfish (GN)												
Green Sunfish (TN)					0.4		0.13	0.5			0.1	0.1
Green Sunfish (EF)						1.0						
Hybrid Sunfish (GN)												
Hybrid Sunfish (TN)						0.8						
Golden Shiner (GN)	--						0.25		0.4			
Golden Shiner (TN)												

Table 15. Stocking records for 1990 to the present for Roosevelt, Tripp County.

Year	Number	Species	Size
1990	3,650	Smallmouth Bass	Fingerling
1991	3,650	Smallmouth Bass	Fingerling
1991	7,300	Walleye	Fingerling
1992	3,650	Smallmouth Bass	Medium Fingerling
1993	1,200	Walleye	Large Fingerling
1998	1,171	Walleye	Fingerling
1998	196	Walleye	Fingerling

RECOMMENDATIONS

1. Resurvey with trap nets, gill nets, and electrofishing in 2005.


SOUTH DAKOTA
DEPARTMENT OF GAME, FISH AND PARKS
ROOSEVELT LAKE
TRIPP COUNTY
SECTION 20--TWP 97N--RGE 74N
B.M. SPILLWAY (9 INCHES BELOW FULL)
PLANIMETERED ACREAGE: 85.7
MILES OF SHORELINE: 3
SYMBOLS
SHORELINE
DEPTH CONTOUR
ROADS
HARD SURFACE
GRAVEL
TRAIL
BENCHMARK -- BM
MARSH
GRAZING LAND -- GL
CROPLAND -- CL
WOODED -- W
PARTIALLY WOODED -- PW
CUTBANK C---C
ROCKY SHORELINE R---R
SANDY SHORELINE S---S
GRAVELLY SHORELINE G---G
PUBLIC ACCESS -- PA
BRIDGE
BUILDINGS
OUTLET
U.S. HWY 18 (2 MI. N.)
B.M.
PW
GL
W
20'
15'
10'
5'
N
Scale in Feet
PLANIMETERED LAKE ACREAGE 85.7
ACRES GREATER THAN 5 FEET 62.0
ACRES GREATER THAN 10 FEET 34.2
ACRES GREATER THAN 15 FEET 8.1
TOTAL ACRE FEET 739.5
AVERAGE DEPTH ..... 8.6 FEET
INLET
U.S HWY. 183 (5 MI.W.)
COLOME (5 MI.W., 4 MI.N.)

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-34

Name: Lake Molstad County: Walworth
Legal Description: T124N-R78W-Sec. 8 & 17
Location from nearest town: 6 miles east and 1 ½ miles north of Mobridge

Date of present survey: July 1-3, 2002 (netting); Oct. 2, 2002 (electrofishing)
Date of last survey: July 19-21, 2000 (netting); Oct. 12, 2000 (electrofishing)
Most recent lake management plan: F-21-R-30 (January 1, 1998 to December 31, 2002)
Management classification: Warmwater Permanent

Primary Game Species	Secondary and Other Species
Lar_emouth Bass	Black Bullhead
Yellow Perch	Northern Pike
Bluegill	Fathead Minnow

PHYSICAL DATA

Surface Area: 100 acres **Watershed:** 13,600 acres
Maximum Depth: 19.5 feet **Mean Depth:** 8 feet
Lake elevation at time of survey (field observations): 1 foot below spillway level
Contour map: No **Date:** N/A

Ownership of lake and adjacent lakeshore properties:

Lake Molstad is located entirely on private land with access easements to the State of South Dakota to a line twelve feet above the high water mark. The South Dakota Game, Fish and Parks manages the fishery.

Watershed condition with percentages of land use types:

The land use in the watershed of Lake Molstad is 60% cropland, 38% hay or pastureland, and 2% tree belts.

Fishing access:

The west shore of the lake has a single boat ramp. Shore fishing access is found around most of the lake's shoreline, but is limited during the summer months by submergent vegetation.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The access road is in fair condition. The boat ramp and spillway are fairly new and in good condition.

Field observations of aquatic vegetation condition:

Lake Molstad's shoreline is surrounded by emergent vegetation consisting of mainly bulrushes and cattails. Submergent vegetation is found throughout 65% of the lake and is extremely thick in shallow areas.

CHEMICAL DATA

Field observations of water quality and pollution problems:

Some siltation problems have been noted in past surveys and are still present in this survey. No other pollution problems were evident at the time of the surveys. Water clarity is good with a secchi disc reading of 10 ft. Other water quality characteristics were measured in the field on July 1, 2002, using a HACH water quality kit. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Lake Molstad, Walworth County, 2002.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc (ft)
A	Surface	23.9	6.33	41.4	298	422	9.0	10
A	18	22.2	3.55	64.8	296	358	9.0	

BIOLOGICAL DATA

Methods:

Lake Molstad was sampled on Julyl-3, 2002, with ten overnight trap net sets. The trap nets have 3 ft. x 5 ft. frames, 60 ft. leads, and $^{3}/_{4}$ in. knotted mesh. No experimental gill nets were set this survey. On October 2, 2002, Lake Molstad was electrofished for 1 hour (6-ten minute transects) with pulsed AC to sample the largemouth bass population. Conductivity was 1200 μhmos with a water temperature of 12.8 degrees C. Smith-Root settings were 120 volts and 11-11.5 amps with a frequency of 60 pulses per second. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Bluegill and black bullhead were the most abundant species sampled by trap nets in Lake Molstad (36.8% & 35.5% respectfully) (Table 2). Other species sampled were northern pike, yellow perch and largemouth bass.

Table 2. Total catch often, overnight 3/4-inch frame nets at Lake Molstad, Walworth County, July 1-3 2002.

Species	#	%	CPUE	80% C.I.	Mean* CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	27	35.5	2.7	± 0.5	13.5	100	100	95
Bluegill**	28	36.8	2.8	± **1.6**	2.8	93	79	121
Yellow Perch	5	6.6	0.5	± **0.4**	1.4	100	60	104
Northern Pike	15	19.7	1.5	± 0.3	0.03	47	7	83
Largemouth Bass	1	1.3	0.1	± 0.1	0.3	--	--	91

* Four years (1995, 1997, 2000, renovated in 1992)
** Bluegill adults were stocked for the first time in 2001

Electrofishing Catch

Electrofishing revealed a good population of largemouth bass at 49 per hour (Table 3). There were a large number of age 1+ fish observed but not collected, indicated a good year class coming on (one individual was sampled for length and age reference).

Table 3. Total catch from six, ten-minute runs of fall nighttime electrofishing on Lake Molstad, Walworth Count October 2 2002.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Largemouth Bass	49	100	49.0	± 11.5	36.5	84	84	106

* Three years (1995, 2000, renovated in 1992)

Largemouth Bass

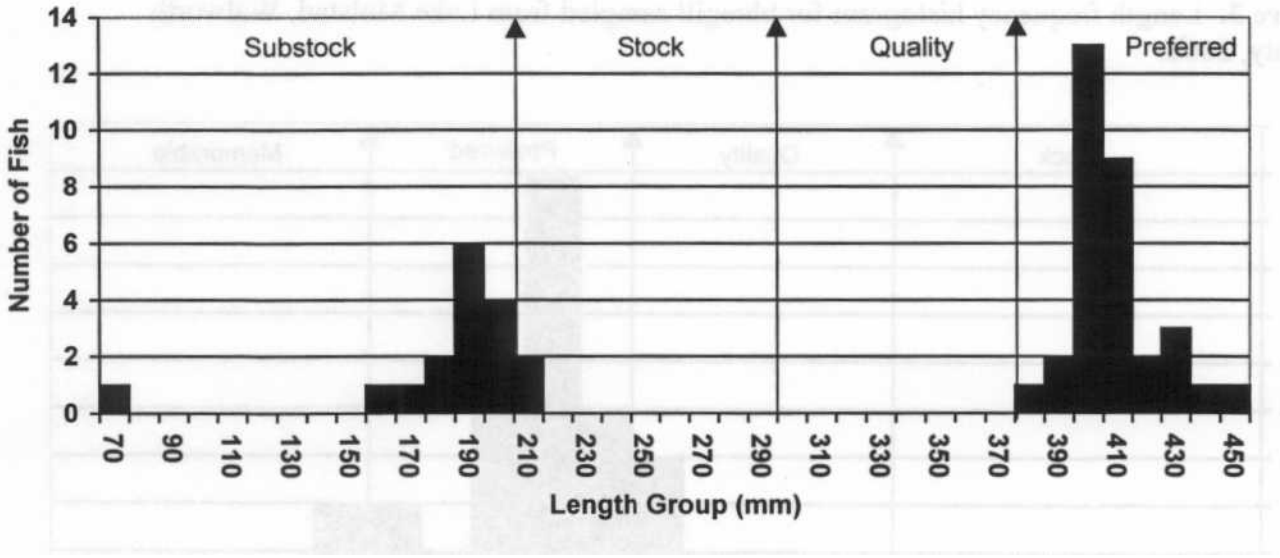
Lake Molstad's largemouth bass population continues to be in excellent shape, although being down from the 2000 survey. This year's electrofishing yielded 49 bass per hour compared to 88.8 bass per hour in 2000. The PSD was 84 as was the RSD-P, which was down from 99 in 2000 (no RSD-P calculated in 2000). The length frequency histogram in Figure 1 indicated that there are several missing year classes. The fall electrofishing showed many age 1 + fish present in the lake, but were not sampled (one individual was for an length and age reference). The Wr mean for all fish was 106. Table 4 shows that largemouth bass growth in Lake Molstad is good, slightly better than statewide, regional and Small Lakes and Impoundments averages.

Table 4. Average back-calculated lengths (mm) for each age class of largemouth bass in Lake Molstad, Walworth County, 2002.

			Back-calculated Age						
Year Class	Age	N	1	2	3	4	5	6	7
2001	1	16	97						
1998	4	18	150	246	290	352			
1997	5	10	117	232	300	351	379		
1996	6	2	116	170	224	283	357	421	
1995	7	3	115	206	248	280	318	350	375
All Classes		**49**	**119**	**213**	**266**	**317**	**351**	**386**	**375**
Statewide Mean			96	**182**	250	305	342		
Region II Mean			105	183	246	296	328		
SLI* Mean			99	**183**	246	299	332		

* Small Lakes and Impoundments

Figure 1. Length frequency histogram for largemouth bass sampled by electrofishing from Lake Molstad, Walworth County, 2002.



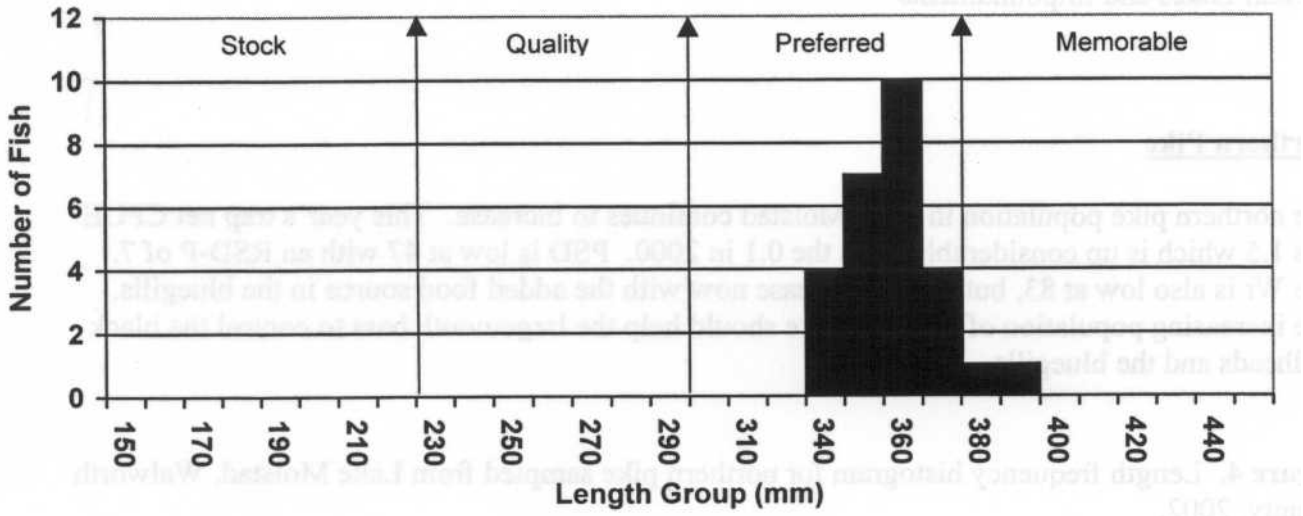
Bluegill

Bluegills were first stocked into Lake Molstad with two separate stockings of adults in 2001. Observations during the fall largemouth bass electrofishing indicated that the bluegills had a very good year class this spring due to the presence of numerous YOY and possible 1+ olds. It is hard to make any comments about the population in Lake Molstad at this time due to the short time since the adults where stocked from other lakes. The fish that were stocked look good with a PSD of 93 and an RSD-P of 79. They had a Wr of 121 with growth consistent with statewide,

Black Bullhead

The black bullhead population continues to decline. This year's CPUE was 2.7 down from 9.8 in 2000. The PSD has stayed at 100 as was in 2000 and the RSD-P was also 100. The Wr of 95 is down slightly from the 104.6 in 2000. Looking back at the past years survey length frequency's, this one group of bullheads just keeps getting bigger with no new year classes being recruited into the population (Figure 3). The largemouth bass appears to be an effective predator on black bullheads, and working very well.

Figure 3. Length frequency histogram for black bullhead sampled from Lake Molstad, Walworth County, 2002.



Yellow Perch

The yellow perch population has declined significantly since the 2000 survey. This year's CPUE was 0.5 for trap nets compared to 2.3 and 23.5 for trap and gill nets respectfully. The main reason for the decline in yellow perch number was the heavy ice fishing pressure Lake Molstad has received in the past few years (since around 1999). The fall electrofishing for largemouth bass did indicate that there might be a few more perch than was sampled during the survey. The PSD is 100 with an RSD-P of 60. The Wr value is 104 and growth is consistent with statewide, regional, and Small Lakes and Impoundments averages.

Table 6. Average back-calculated lengths (mm) for each age class of yellow perch in Lake Molstad, Walworth County, 2002.

			Back-calculated Age				
Year Class	Age	N	1	2	3	4	5
1999	3	3	84	146	204		
1998	4	1	72	114	162	234	
1997	5	1	84	142	205	249	285
All Classes		**5**	**80**	**134**	**190**	**241**	**285**
Statewide Mean			86	145	190	220	242
Region II Mean			91	152	196	219	242
SLI* Mean			87	142	185	205	219

* Small Lakes and Impoundments

Northern Pike

The northern pike population in Lake Molstad continues to increase. This year's trap net CPUE was 1.5 which is up considerably from the 0.1 in 2000. PSD is low at 47 with an RSD-P of 7. The Wr is also low at 83, but should increase now with the added food source in the bluegills. The increasing population of northern pike should help the largemouth bass to control the black bullheads and the bluegills.

Figure 4. Length frequency histogram for northern pike sampled from Lake Molstad, Walworth County, 2002.

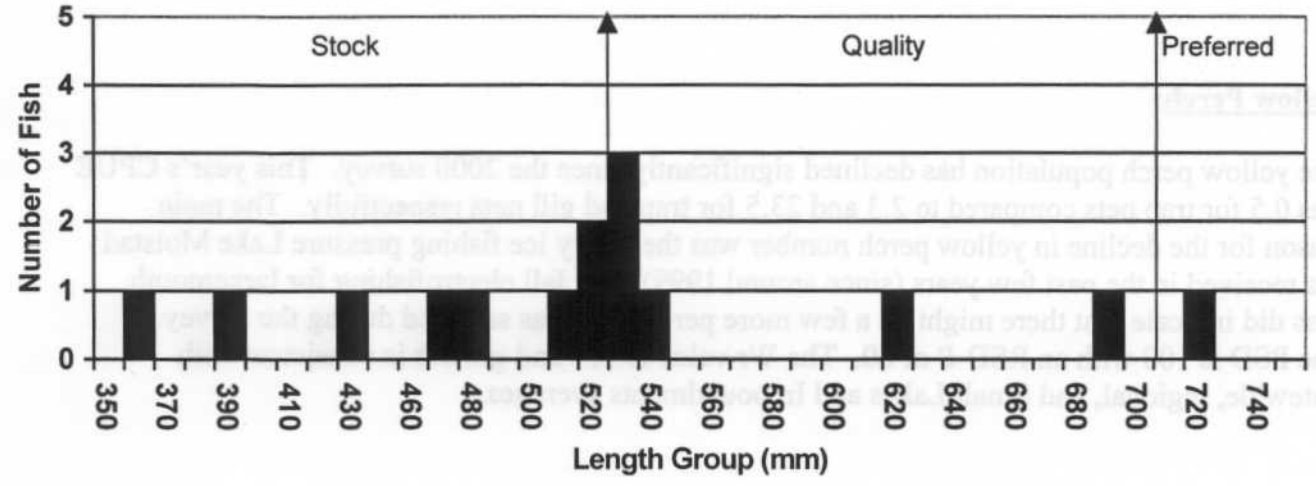


Table 7. Gill net (GN), trap net (TN), and electrofishing (EF) CPUE for all fish species sampled in Lake Molstad since the renovation in 1992.

Species	1995	1997	2000	2002
Black Bullhead (GN)		35.0	5.5	
Black Bullhead (TN)	87.3	3.6	9.8	2.7
Yellow Perch (GN)		20.0	23.5	
Yellow Perch (TN)	0.5	1.4	2.3	0.5
Largemouth Bass (EF)	20.6		**88.8**	49.0
Largemouth Bass (GN)			3.5	
Largemouth Bass (TN)	0.4	0.5	0.1	0.1
Northern Pike (GN)			2.0	
Northern Pike (TN)			0.1	1.5
Bluegill (GN)				
Bluegill (TN)				2.8
Smallmouth Bass (EF)	2.6			

Table 8. Stocking records from the renovation in 1992 to the present for Lake Molstad, Walworth County.

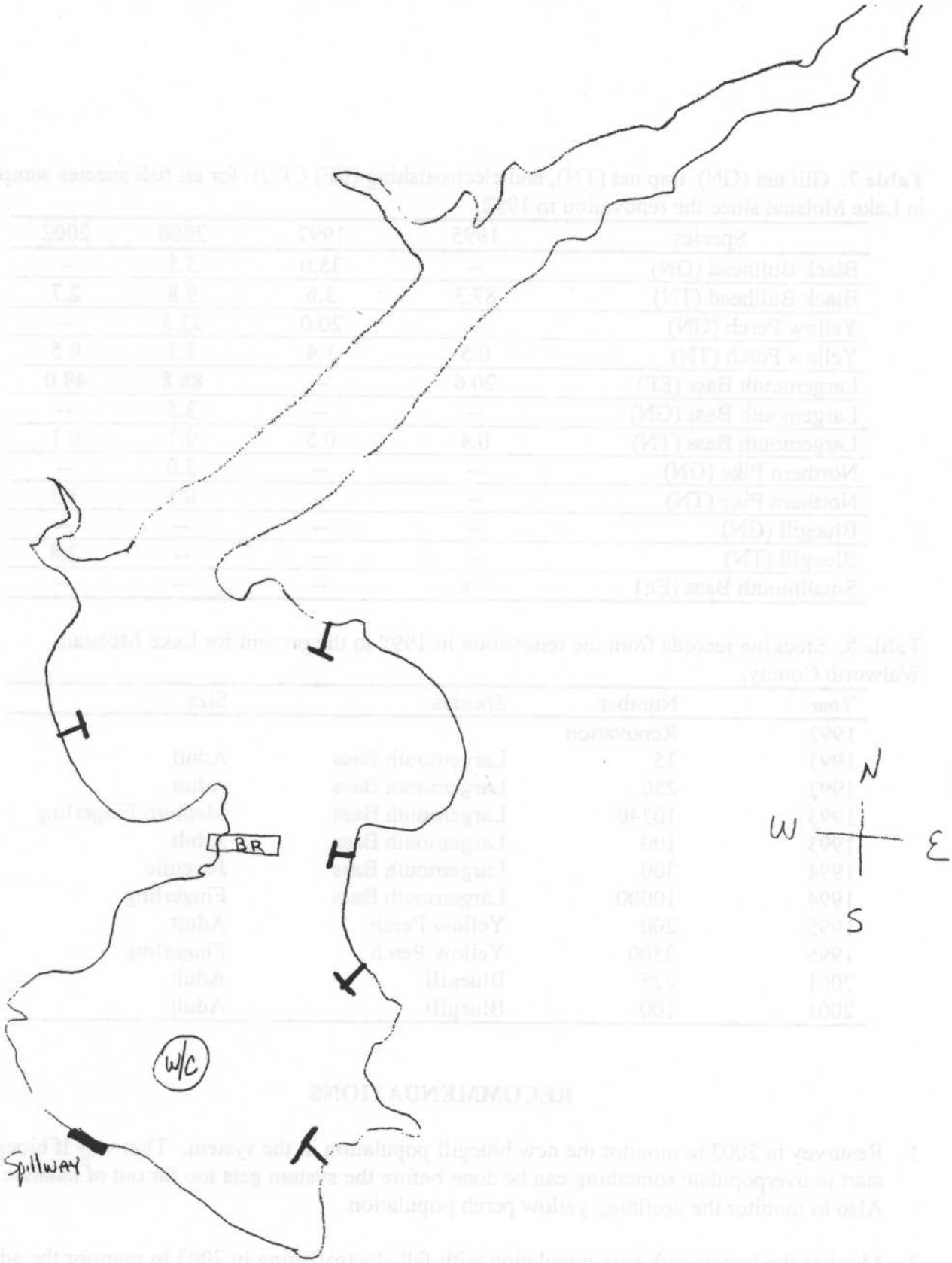
Year	Number	Species	Size
1992	Renovation		
1993	35	Largemouth Bass	Adult
1993	250	Largemouth Bass	Adult
1993	10340	Largemouth Bass	Medium Fingerling
1993	100	Largemouth Bass	Adult
1994	300	Largemouth Bass	Juvenile
1994	10000	Largemouth Bass	Fingerling
1995	200	Yellow Perch	Adult
1995	2500	Yellow Perch	Fingerling
2001	225	Bluegill	Adult
2001	100	Bluegill	Adult

RECOMMENDATIONS

1. Resurvey in 2003 to monitor the new bluegill population in the system. That way if bluegills start to overpopulate something can be done before the system gets too far out of balance. Also to monitor the declining yellow perch population.

2. Monitor the largemouth bass population with fall electrofishing in 2003 to monitor the adult bass, as well as to see if the new year classes continue to recruit to the population, or if stockings need to be made. This will help to stay on top of the bluegill fishery that is now started as well as the bullheads.

3. Possibly consider stocking yellow perch into Lake Molstad in either 2003 or 2004 to help them rebound now with the bluegills in the system.



LAKE Molestad
100 acres